AV-Trend

Produced by Agilaire LLC

2904-B Tazewell Pike, Suite A
Knoxville, TN 37918
www.agilairecorp.com
info@agilairecorp.com

Support:
865-927-9440
support@agilairecorp.com

May 2014

Installing AV-Trend

AV-Trend can be installed on XP Pro / Server 2003 or better (through Windows 7/8 or Server 2008R2). 4GB of RAM is recommended. Before AV-Trend can be installed, the following software must be installed on your computer: **SQL Express 2008** with all available service packs, as well as **.NET Framework version 3.5 AND 4.0**. SQL will request that the Windows Component **Internet Information Services (IIS)** be added, but IIS is NOT necessary for AV-Trend and does not have to be enabled.

Installing Microsoft .NET Framework

If you don't already have the latest version .NET Framework installed on your computer, you can download it from the Microsoft website. Follow the instructions in the installation wizard.

Installing SQL Server

Before SQL Server can be installed, .NET Framework version 3.5 must be installed.

To install SQL Server Express, insert the CD or DVD and follow the instructions in the wizard. In the first screen check the box to accept the license agreement and click **Next**.

The default features are sufficient in the **Feature Selection** screen, but you can select the program features you want installed. The most important feature to install is **Client Tools**. Click **Next**.

Agilaire recommends **Windows Authentication Mode**. The purpose of Authentication Mode is to specify the security used when connecting to SQL Server. If you select **Windows Authentication Mode** a password is not required.

If you select **Mixed Mode** (a combination of Windows Authentication and SQL Server Authentication) you must enter and confirm a **password** for the System Administrator (logon user name "sa"). Click **Next** to continue.

The remaining setup screens are self-explanatory. Follow the directions and click **Finish** in the **Completing Microsoft SQL Server Setup** screen.

▶ **Note:** If you set up SQL in Windows Authentication mode, you must must log in to SQL with Windows Authentication, not SQL Server Authentication, or the AV-Trend Service won't start.

Installing the AV-Trend Database

After you have installed SQL Server:

1. From the Windows **Start** menu, select **All Programs** > **SQL Server Management Studio**.

2. Right-click the **Databases** folder and select **New Database**. For the **Database name**, enter **AVData** and click **OK**.

3. **Click** to select the database you just created (AVData)

First-time Installation of the AV-Trend Database

1. If you are installing AV-Trend for the first time, insert the installation CD and browse to open the folder **AV Database_Freshinstall** (double-click to open **My Computer**, then right-click the **CD drive** and select **Open**). Within the folder **Database_Freshinstall** double-click **AVReleaseCreator.sql**. The script should open in the **AVData** folder in SQL.

2. Click **! Execute** to run the query. The query will install the SQL tables needed to run AV-Trend. The bottom of the query screen will display the results of the query. Any error messages will be listed by line number. Be sure to save any error messages in case you need to call Agilaire Support for help.

Installing AV-Trend

▶ **Note:** If you are upgrading AV-Trend from version 2.1 or higher, you no longer need to uninstall the old version before you run the new installation.

1. If the AV-Trend installation does not open automatically after you insert the installation CD, double-click to open **My Computer**, then right-click the **CD drive** and select **Open**. Double-click the **Setup** icon to begin.

2. Accept the license agreement and click **Next**.

3. Enter your **User Name**, **Company Name** (optional), and the unique **Product ID** (required) supplied by Agilaire. Click **Next**.

4. Click **Next** to accept the default destination directory (C:\Program Files\Agilaire LLC\ Server) or browse to change the directory and then click **Next**.

5. The final screen will say AV-Trend has been successfully installed. Click **Finish**.

Logging In to AV-Trend

The AV-Trend Installer automatically creates a login profile for "local host." If that profile doesn't work,e click the square button to open the **Profiles** screen.

In the Profiles screen, click the **Add Profile** button and enter the name of your executive (computer where the AirVision server is installed) for the **Profile Name**. (If you don't know the computer name, right-click the **My Computer** icon from the Windows **Start** menu on the computer where the AirVision server is installed. Select **Properties** and open the **Computer Name** tab.)

Enter **admin** as the **Username**, click **Set Password** and enter **Agilaire**.

Click the **Test Connection** button to see if AV-Trend is communicating with the database.

AV-Trend Login
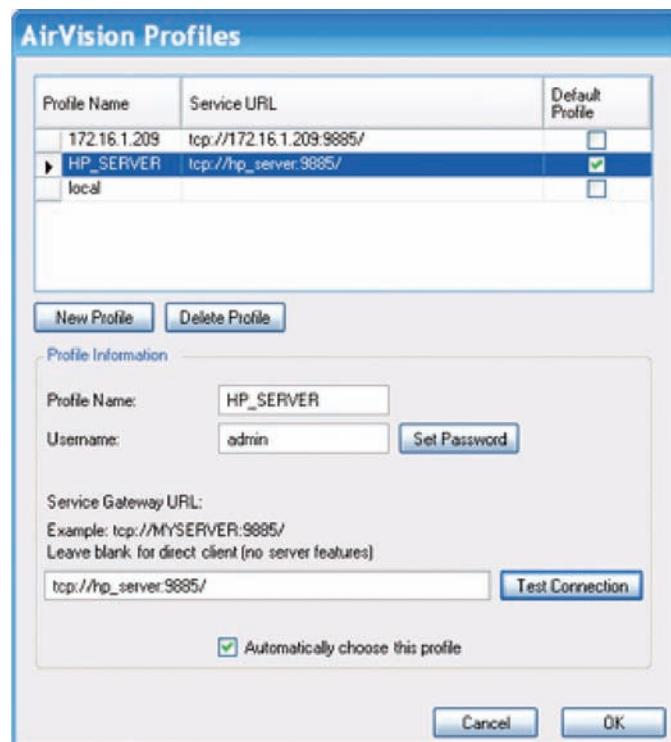
AV-Trend Profiles

Accessing Profiles After Logging In

After you are logged into AirVision, you can access the Profiles screen by clicking the AirVision icon in the upper left corner of the screen (beside the **Save** icon). From this Profiles screen you can:

◆ **Save**

◆ **Capture** the AirVision screen

◆ **Print**

◆ **Close** the Profiles screen.

◆ You can also open **AirVision Options**, which brings up the same Profiles screen you saw when you logged in.

◆ You can close AirVision altogether by selecting the **Exit** button.
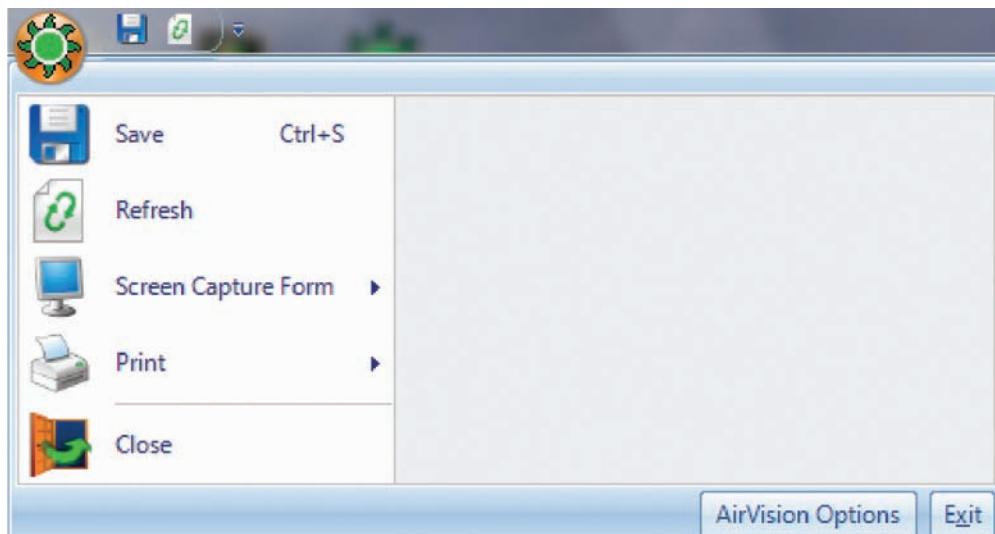
AV-Trend Profiles seen by clicking the AirVison icon in the upper left corner of the AirVision screen after you have logged in

Chapter 2

Configuring AV-Trend

AV-Trend provides nearly unlimited flexibility in setting up systems and configuring servers. This chapter explains how to set up the following parts of AV-Trend:

◆ Configuring System Preferences
> *Configuration Editors > Parameter Settings*

◆ Configuring Server Preferences
> *Configuration Editors > PC Configuration*

◆ Setting up Sites and Parameters
> *Configuration Editors > Parameter Settings*

◆ Configuring Parameter Templates
> *Configuration Editors > Parameter Template Editor*

◆ Adding Loggers to Sites
> *Configuration Editors > PC Configuration*

◆ Adding Channels to Data Loggers
> *Configuration Editors > Logger Channels*

◆ Adding Communication Routes
> *Configuration Editors > PC Configuration*

◆ Associating a Logger to a Logger Driver
> *Configuration Editors > PC Configuration*

◆ Testing Your Connection
> *Utilities > Link to Logger*

◆ Downloading Channel Configurations
> *Utilities > Logger Download*

◆ Setting up Calibrations
> *Configuration Editors > Logger Channels*

◆ Scheduling Tasks
> *Configuration Editors > Task Scheduler*

◆ Adding Users
> *Configuration Editors > Security > User Editor*

◆ Adding Favorites
> *Configuration Editors > Favorites Editor*

For information about starting the AV-Trend Service and logging in to AV-Trend, see "Chapter 1 Installation."

Configuring System Preferences

To set up system preferences, open **Parameter Settings** from **Configuration Editors** and double-click the **System** icon. The System is the agency or area, such as Knox County or State of Tennessee. Typically, each agency setup will only have one System (a second system could be used to help separate, for example, air toxics or water quality data from the other quality data), but it is possible to set up more than one by clicking the **Add System** button on the ribbon.

Verify that the **Time Zone** is correct. The other fields (listed below) are optional, and typically used only if your license includes full Ambient reporting:

System Name
County Code
Agency Code (provided by EPA)

Click the **Save** button.
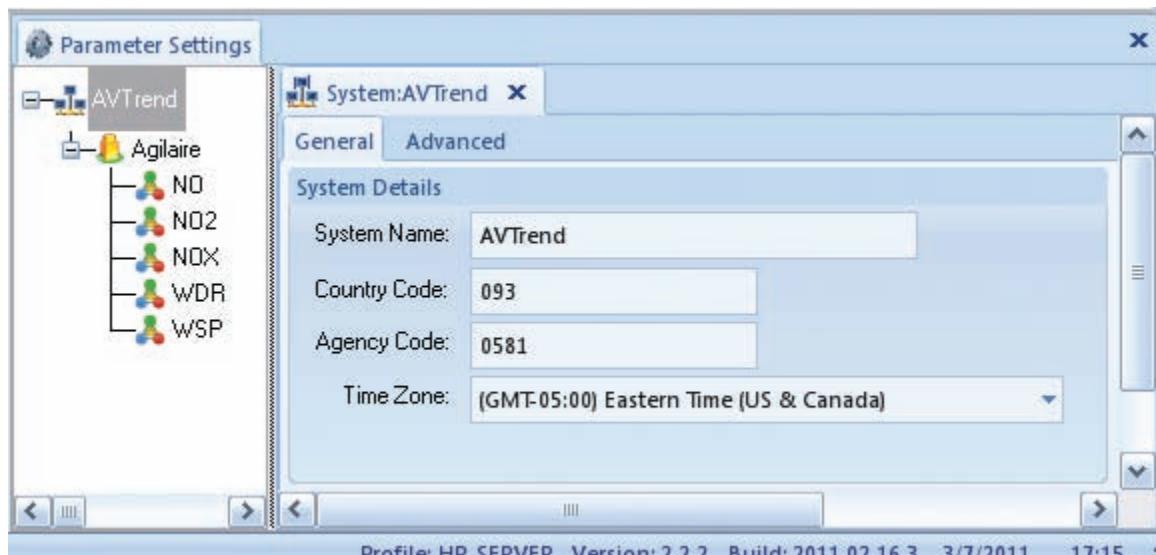
System Configuration from Parameter Settings Editor

Site and Parameter Setup

The **Parameter Settings Editor** from the **Configuration Editors** menu allows administrators to add, edit, and delete sites and parameters. In AV-Trend, a Site is not necessarily a single data logger as it was in E-DAS. A **Site** is a logical organization of a physical monitoring area and can contain data from several sources, such as data loggers, PM samplers, and directly polled analyzers.
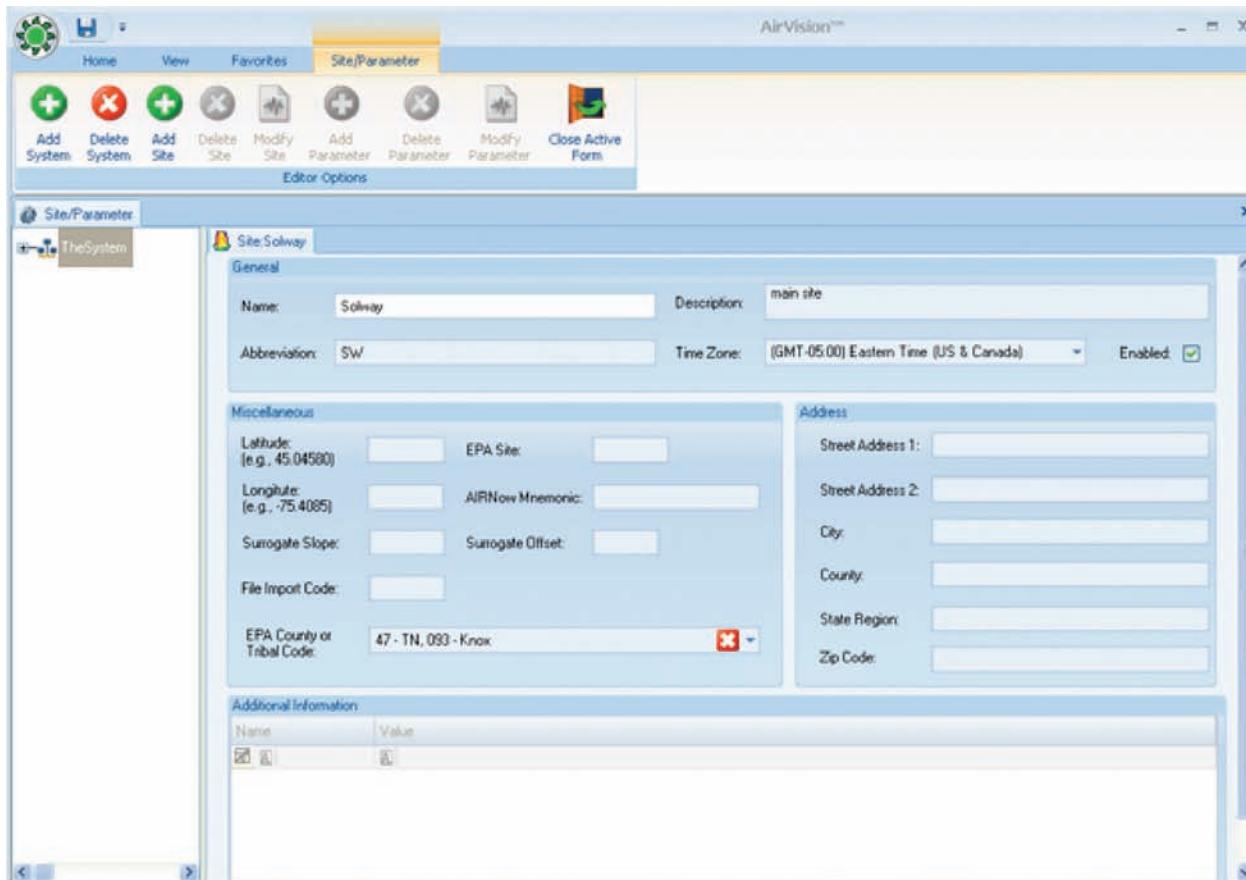
Site Configuration from Parameter Settings in Configuration Editors

Adding a Site

To add a site, single-click **Configuration Editors/Parameter Settings**. In the **Parameter Settings** screen, highlight your **System** in the tree diagram and click the **Add Site button.** Required fields are **Name** and **Time Zone**. Enter the name of your **Site** and select a **Time Zone** from the drop-down list. Select the **Enabled** box and click the **Save** icon.

To edit a site, double-click the **Site** name in the Parameter Settings tree diagram, make changes, and click the **Save** icon.

The Site Editor contains the following fields for information about the site:

◆ **Name**
   (Required)
   Alphanumeric characters to refer to the site, e.g., NKnox

◆ **Description**
   Brief description of the site, e.g., North Knoxville (optional)

◆ **Abbreviation**
   This field is used for special formats only. (File Import is not available in AV-Trend.)

◆ **Time Zone**
   (Required)
   Select from drop-down list.

◆ **Enabled**
   (Required for polling)
   Check the box to enable the site. If this box is not selected the site will not be polled or appear in report/editor selections.

◆ **Latitude**
   To comply with EPA standards, enter latitude in decimal format. For example, 75 degrees, 15 minutes, and 0 seconds would be entered as 75.250000. Enter up to 2 places and a minus sign if needed to the left of the decimal and up to 6 places to the right of the decimal.

◆ **Longitude**
   To comply with EPA standards, enter longitude in decimal format. For example, 75 degrees, 15 minutes, and 0 seconds would be entered as 75.250000. Enter up to 2 places and a minus sign if needed to the left of the decimal and up to 6 places to the right of the decimal

◆ **EPA Site**
   Two-character site code provided by EPA

◆ **AIRNow Mnemonic**
   Optional reference for internal use only--not used by EPA

◆ **Surrogate Slope**
   Used to calculate a projected (forward rolling) eight-hour average for ozone if needed, computed with the slope/intercept formula required by EPA

◆ **Surrogate Offset**
   Used to calculate a projected (forward rolling) eight hour average for ozone if needed, computed with the slope/intercept formula required by EPA

◆ File Import Code   Single character used for file import templates in special cases only. (File Import is not available in AV-Trend.)

◆ EPA County or Tribal Code   County or Tribal code provided by EPA

◆ Address   Physical address of the Site

◆ Additional Information   You can add notes at the bottom of the Site Editor by clicking on the asterisk at the bottom of the screen. Enter a **Name**, for example "Distance to tree line," and a **Value**, for example "70 feet." When you have completed your entry press the **Enter** key on your computer keyboard. Your entry will be moved to the next row in the Additional Information section.

Adding Parameters

To add a parameter configuration, highlight a **Site** from the **Parameter Settings** tree diagram and click the **Add Parameter** button near the top of the AV-Trend screen. To edit a parameter select a **Site** and then double-click a **Parameter**.

Parameter Configuration from Parameter Settings in Configuration Editors

The **Parameter** screen displays the following fields. Some of the EPA Code fields are used only if your license supports full Ambient Reporting.

◆ Site   The Site you selected in the Parameter Settings tree diagram will automatically be displayed.

◆ Parameter   Alphanumeric characters to identify the Parameter

◆ Parent Parameter   A Parent Parameter can be designated to form relationships that can be used for drill-down in the Data Editor. For example, a primary analyzer pollutant such as NOx could be a parent and designated diagnostic parameters such as sample flow or box temperature could be children. Another example would be to assign particulate parameters as parents and metals for XRF (X-ray fluorescence) analysis as children. If the parameter has a parent parameter, select it from the drop-down list.

◆ Parameter Template   Parameter information can be filled in automatically by selecting a Parameter Template, which will set up EPA codes and units. Basic Parameter Templates are provided in AV-Trend. If you want to automatically fill in parameter information using a template, select a parameter template from the drop-down list and click **Apply**. If you have converted your data from E-DAS and the information is already filled in, you can still select a template but if you click Apply or it will be overwritten.

◆ Enabled   Check the box to enable the parameter.

◆ Enable AIRNow Reporting   Not used in AV-Trend

◆ Filter from Web Site   Check the box to filter data from website

◆ Parameter Data Type   Select a data type: **Average (Continuous)**, **Composite Sample**, or **Particulate Sample** (for manually entered, non-continuous data).

◆ Description   Enter a brief description of the parameter (optional).

◆ EPA POC   Enter an EPA Parameter Occurrence Code if needed. POC is used for different monitors measuring the same parameter at one site.

◆ EPA Method   EPA sampling Method Code

◆ EPA Units   Select EPA Units (including the EPA unit code) from the drop-down list (e.g., 007-parts per million, 015-degrees Fahrenheit).

◆ EPA Parameter   Select a parameter (including EPA parameter codes) from the drop-down list (e.g., 44201 - Ozone).

◆ Reported Digits   Total number of digits, including decimal places, that will be reported to the EPA.

◆ Precision   Number of decimal places for reporting precision.X's and Y's to the right of the reporting precision field illustrate the format of the digits/precision, e.g., XX.YY indicates a total of four Reported Digits with a Reporting Precision of two.

◆ Truncate/Round Rule   Determines whether data in reports will be rounded or truncated

◆ Reported Units   Units that will be used for reports e.g., PPM

◆ Analyzer Units   If the analyzer units are different from the primary parameter, select analyzer units from the drop-down list.

◆ Graph Minimum   Lower y-axis limit for graph display

◆ Graph Maximum   Upper y-axis limit to for graph display

◆ Calibration Span   This field is determined by the instrument. Enter the configured calibration span value for the parameter to determine the parameter's calibration error (at the data logger).

◆ Instrument Detection Limit   Minimum concentration of an analyte that can be measured
  (DL)   by an instrument. The DL is an estimate of concentrations at where you can be fairly certain that the compound is present. Concentrations below this limit may not be detected. Used for air toxics measurements only (can be blank if not needed).

◆ Limit of Quantization (LOQ)   A minimum criterion or region for quantization that should be clearly above the detection limit. The lowest concentration of an analyte in a sample that can be determined (quantitated) with acceptable precision and accuracy under the stated operational conditions of the method. Traditionally, this is approximated as 10 times the signal-to-noise (S/N) ratio.

◆ Minimum Detectable Limit (MDL)

EPA defines the MDL as the minimum concentration of a substance that can be measured and reported with a 99% chance that the analyte concentration is greater than zero.

◆ Practical Quantization Limit (PQL)

The lowest concentration of an analyte that can be reliably measured within specified limits of precision and accuracy during routine laboratory operating conditions.

◆ Parameter Report Order

Parameters in reports are printed in the same order that they are shown under each site. Select Parameter Report Order to change the order parameters appear in reports. Report Order only applies to Daily Summary and Monthly Reports.

◆ Totalize in Reports

If this option is selected, Monthly Reports will show a total of data rather than an average. Totalize in Reports   is most commonly used for rainfall.

◆ Minimum in Reports

If this option is selected, Monthly Reports will show a minimum of data rather than a Maximum. Minimum in Reports is most commonly used for temperature.

◆ Additional Information

You can add notes at the bottom of the Parameter Editor by clicking on the asterisk at the bottom of the screen. Enter a **Name**, for example "Data Last Certified," and a **Value**, for example "9/1/2008." To add another row when you have completed your entry, press the **Tab** key on your computer keyboard. A blank row will be displayed.

Adding Loggers to Sites in Logger Channels

The next step, after configuring sites and parameters, is to add **Loggers** to sites.

▶ **Note:** Data loggers must be added to sites **BEFORE** channels are configured. Channels are added to loggers after the loggers are set up.

Still in the **Configuration Editor**,

- ◆ single-click **Logger Channels**,
- ◆ highlight a **Site**,
- ◆ click the **Add** button and
- ◆ select **Logger**.
- ◆ enter a **Source Name**, e.g., 01Logger,
- ◆ enter the **Logger ID** e.g., 01 (This field is required),
- ◆ select a **Logger Type** from the drop down list, e.g., 8832,
- ◆ and click **Enabled**.
- ◆ optionally, you can enter a **Description** and select **Debounce Digital Inputs**.
- ◆ Click the **Save** button.
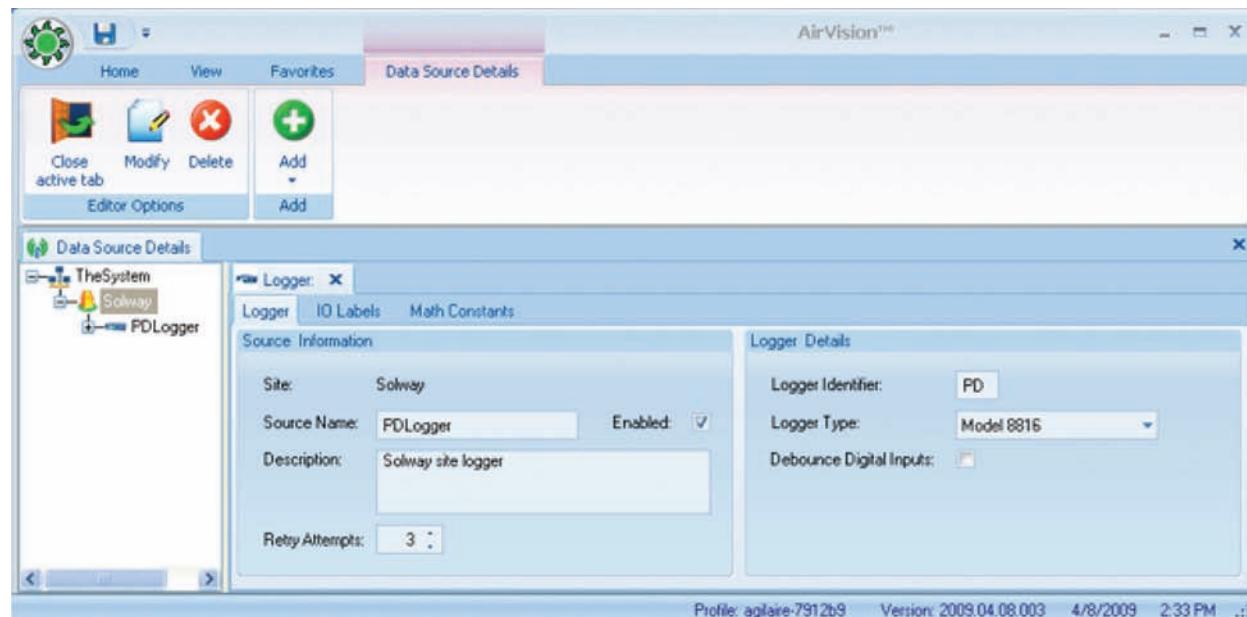
Logger Configuration from Logger Channels in Configuration Editors

Adding an Instrument

If AV-Trend is licensed to poll and instrument directly (without using a data logger), select **Configuration Editors/Logger Channels** and highlight the **site name** in the **Logger Channels** configuration tree diagram. Click the **Add button** and select **Instrument**. The **Instrument Type** (ID) field is required and can be selected from the drop-down list. Enter a **Source Name**, an **Instrument Identifier** and **Instrument Password**, and click the **Enabled** box. Click the **Save** icon.
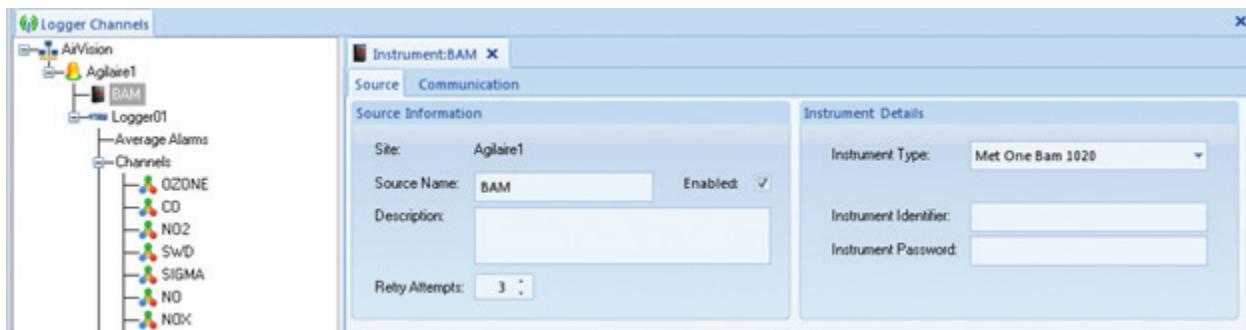
Instrument Configuration from Logger Channels in Configuration Editors

Adding Channels to Data Loggers

Still in the **Configuration Editor**, **Logger Channels**,

- ◆ select a **Logger** that has already been added to a **Site** (see "Adding Loggers to Sites")
- ◆ click the **Add** button.
- ◆ select **Add Channels**,
- ◆ select a **Channel Type**, e.g., Standard Averaging, GSI, VWS, etc.
- ◆ select a **Channel Number** (a channel number will automatically be added in order but it can be changed)
- ◆ select a **Parameter.** When you select a parameter, the Channel Name will automatically be changed to match the Parameter name.

For the remainder of the prompts on the form, consult the ESC Model 8816/8832 User Manual.

- ◆ select an **Average Interva**l and **Storage** for the **Base Average**, **Extended Average 1**, and **Extended Average 2**.
- ◆ Click the **Save** button

Follow the same procedure to add calibrations, average alarms, and digital event triggers.
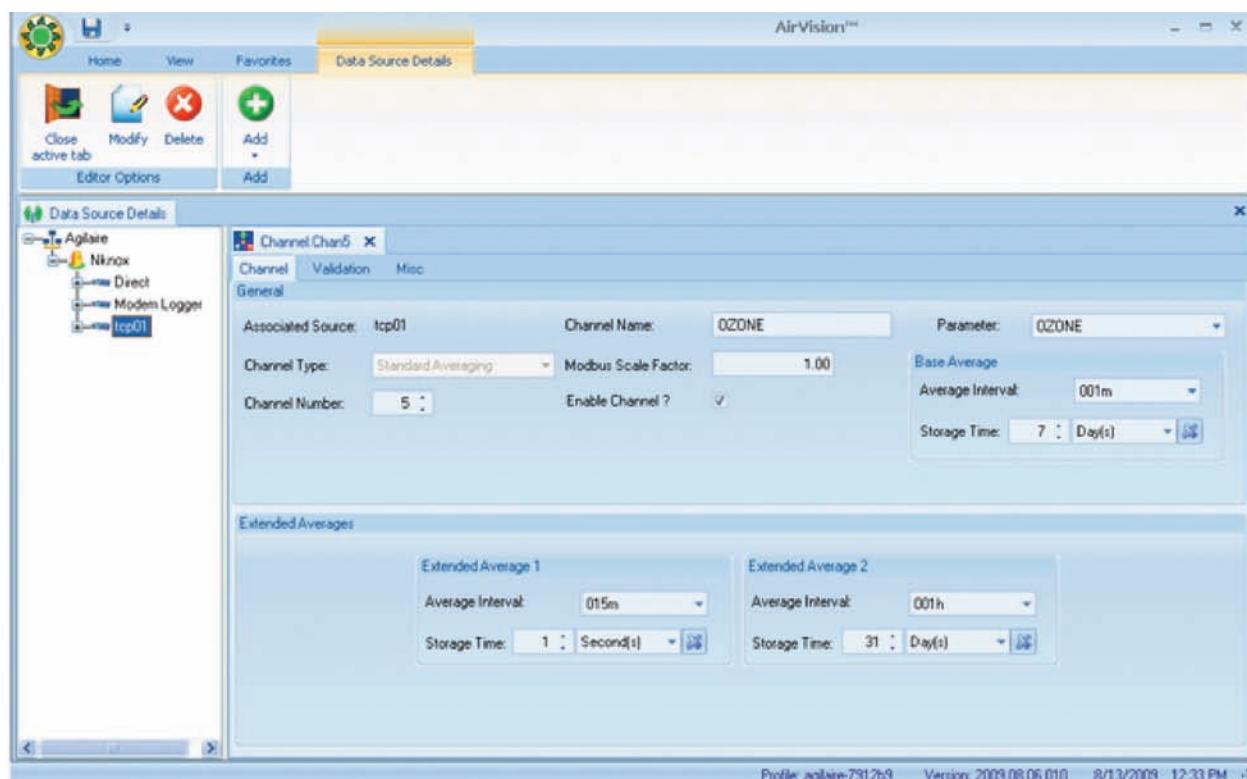
Adding channels to loggers in the Data Source Configuration from Configuration Editors

Two channel types are handled differently in AV-Trend than in previous systems; both improve on digital data acquisition integration.

◆ The first channel type, the GSI (Generic Serial Interface) channel, is used for RS-232 based instruments. AV-Trend includes GSI drivers for a wide variety of instruments. Choose the instrument, the parameter, and designate which serial port is connected. Using a dongle can be designated if the instrument connection requires a hardware dongle (e.g., C-Series Analyzers in a daisy-chain configuration, or Ecotech analyzers).

GSI channel configuration
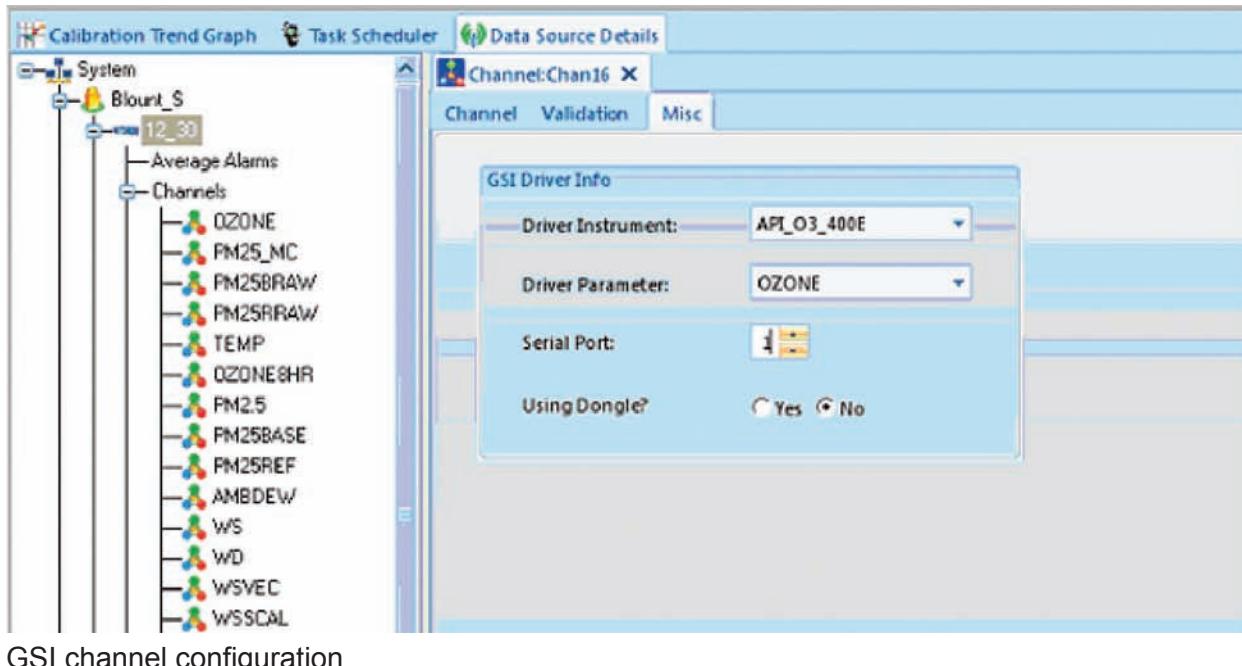
◆ The second channel type (a better approach for digital data acquisition) is the Modbus channel. Designate an **Instrument** that has been previously configured in the **Logger Channels** editor, and select a **Parameter**.
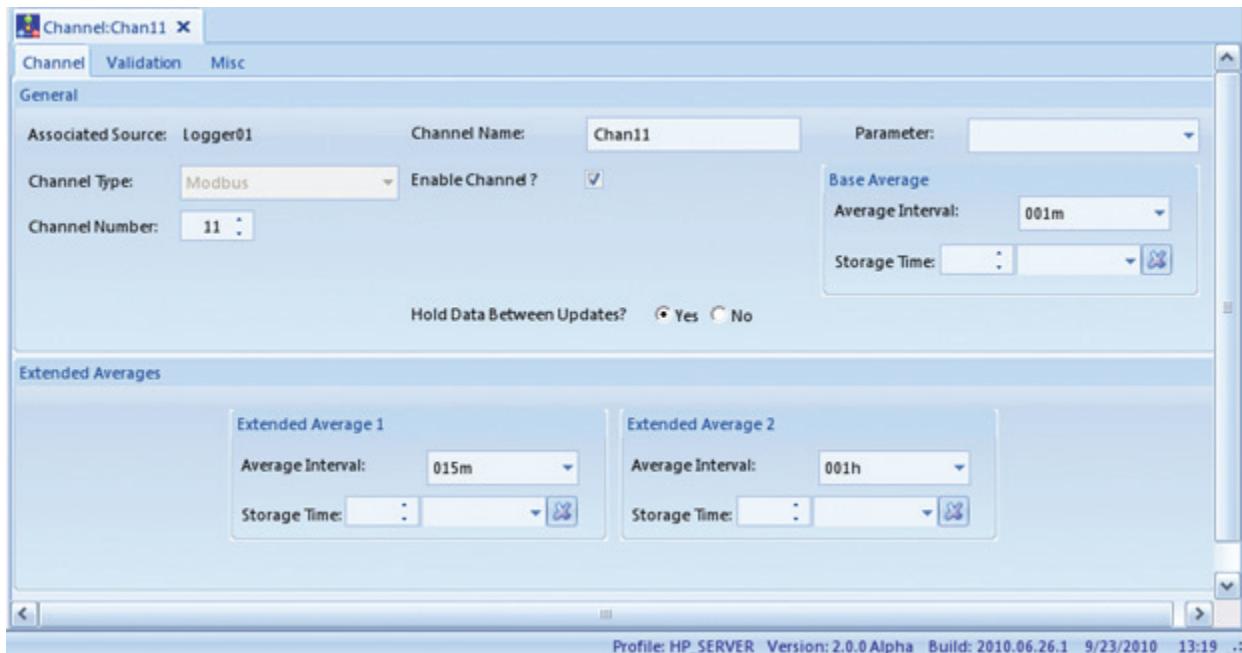
Modbus channel configuration

Like the GSI channel, AV-Trend simplifies the configuration process by automatically creating and downloading the data logger's server configuration file in the background. Since Modbus instruments have additional networking information that needs to be known, you must create an instance of the Modbus instrument in the Logger Channels editor before creating the Modbus channels for that instrument (This procedure prevents the need to repeat entry of the networking information for each channel).

To create the instrument,
go to the Logger Channels
editor, select the data logger
in the tree diagram, and select
Add > **Logger Modbus
Instrument**.
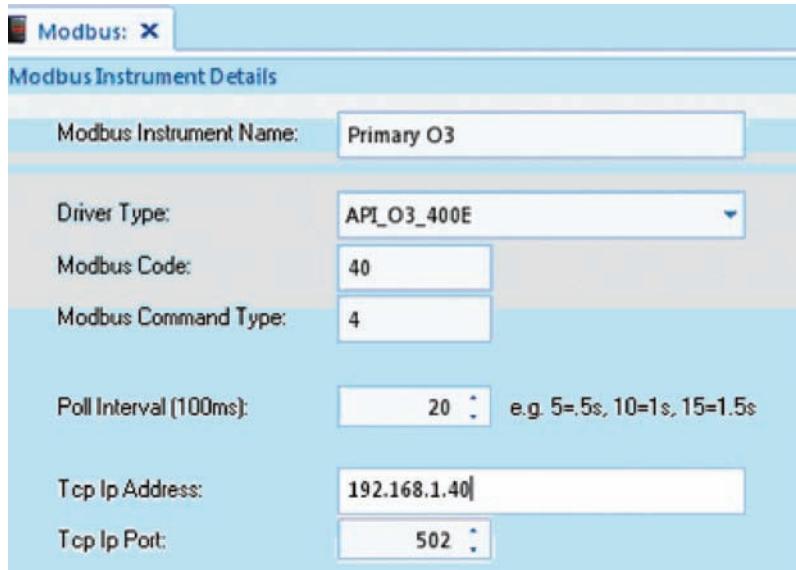
Modbus Instrument Details in Logger Channels

Enter the following fields:

◆ **Instrument Name**--a user-defined label for the instrument

◆ **Driver Type**--select from picklist of known analyzers

◆ **Modbus Code**--also known as the **Modbus Device ID**, this ID is set in the analyzer, and is some value from 1-255

◆ **Modbus Command Type**--defines which Modbus command is used to read data from the analyzer (3 for TECO, 4 for API, consult instrument documentation for other brands)

◆ **Poll Interva**l- how often data should be requested from the instrument, in tenth of a second increments. Generally, a rate of 20-30 seconds is recommended.

◆ **TCP Address**--IP address of the instrument, as viewed from the logger's perspective

◆ **TCP Port**--Port used by the instrument for Modbus requests, usually "502".

◆ **Timeout (MS)**--Designates the time the logger will wait on an instrument for a Modbus response. Typical values are 250-750 MS

Misc tab in Add Modbus

Once the instrument is configured and saved, you can then select **Add**> **Add Channel** > **Modbus** in the **Logger Channels** editor. Under the **Misc** tab, select the **Modbus Instrument** and **Driver** from the picklists. If you need a parameter that is not in the picklist, contact Agilaire Support (support@agilairecorp.com) and we will add it to your system.

Modbus channels in the 8872 will use the **Modbus Scaling Factor** to convert floating point data from the instrument before using it in averages, calibrations, etc. This can be used to convert an analyzer that only provides PPB data on the Modbus link to PPM data, or similar conversions. This approach is preferred over **Analyzer Units** in the logger, since the **Analyzer Units** conversion only takes place on averages and calibration data, but causes inconsistency with other logger configuration settings (alarm limits, calibration expected values, etc).
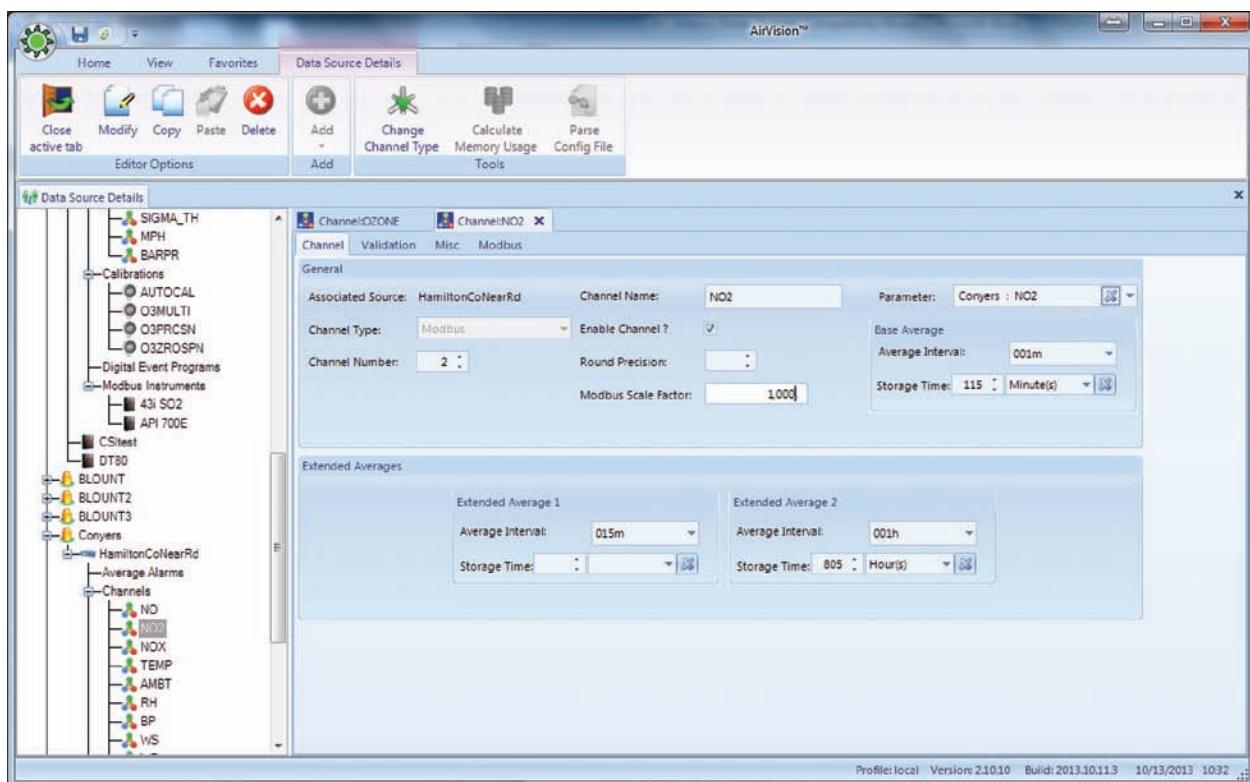
Adding Communication Routes

The next step is to identify to the AV-Trend Server how to communicate with each logger by Communication Routes. Typically, for AV-Trend Systems, this would be a TCP/IP or a direct Serial Connection.

After you configure the **Source** (data logger or instrument):

- ◆ Go to **Configuration Editors**>**Logger Channels** and double-click the **Logger icon**
- ◆ Click the **Communication tab** to configure a **Communication Route** for each logger.
- ◆ If your logger doesn't appear in the drop-down list, click the **Device Route** button in the bottom of the screen of the Communication tab to select one of the communication routes described below: Normally, AV-Trend uses only TCP or Serial Routes.

Adding TCP/IP Routes

▶ **Note:** TCP/IP connections are easier and faster than modems.

For sites with a TCP/IP connection, in the **TCP Connection Details** section of the screen

- ◆ Click the **Device Route** button in the Communication tab and select TCP
- ◆ Enter a **Route Name**, e.g., Agilaire,
- ◆ Enter a **Network Address**, e.g., 172.16.1

The defaults are set for 8832 defaults, but can be changed based on your network/route definitions:

- ◆ **Polling Port** at 9881
- ◆ **Emulation Port** at 9887.

In the **Advanced** section of the screen

- ◆ Select **Read Timeout** from the drop-down list, if directed by Agilaire Support
- ◆ Select **Write Timeout** from the drop-down list, if directed by Agilaire Support
- ◆ Select **Disconnect After** from the drop-down list, if directed by Agilaire Support.
- ◆ Select **Inter-byte Delay (ms)** to slow the inter-character transmission speed.

Click the **Save** button.

Adding a TCP Route in Configuration Editors > Logger Channels

Adding Serial Routes for Direct Communication

After you configure the **Source** (data logger or instrument):

 ◆ Go to **Configuration Editors**>**Logger Channels** and double-click the **Logger icon**

 ◆ Click the **Communication tab** to configure a **Communication Route** for each logger.

 ◆ Click the **Create New Route** button in the Communication tab to select **Serial** route.

In the **Serial Connection Details** section of the screen

 ◆ Enter a **Route Name**, e.g., Agilaire,

 ◆ Enter a **Comm Port**

 ◆ Select a **Baud Rate**. from the drop-down list. The default is 9600.

 ◆ Select **Data Bits** from the drop-down list. The default is 8

 ◆ Select **Stop Bits** from the drop-down list. The default is 1

 ◆ Select **Parity** from the drop-down list. The default is None

In the **Advanced** section of the screen

 ◆ Select **Read Timeout** from the drop-down lis, if directed by Agilaire Support

 ◆ Select **Write Timeout** from the drop-down list, if directed by Agilaire Support

 ◆ Select **Disconnect After** from the drop-down list, if directed by Agilaire Support.

 ◆ **Inter-byte Delay (ms)** can be used to slow the inter character transmission speed.

Click the **Save** button.

▶ **Note:** Communication Routes can also be added in **Configuration Editors** > **PC Configuration** by highlighting the **Server** icon and clicking one of the **Add** buttons.
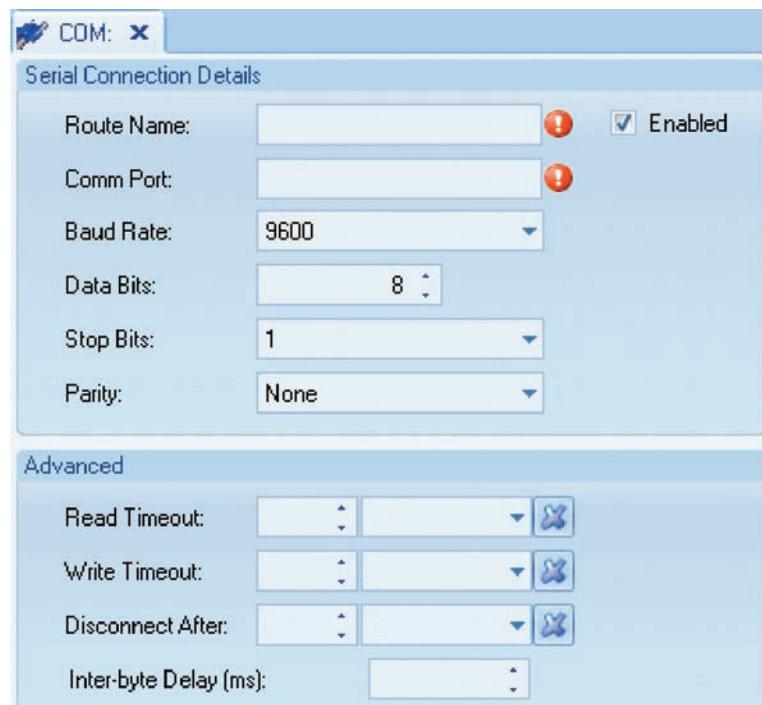
Adding a Serial Route in Configuration Editors >
Logger Channels

Configuring Communication Routes

> ⇨ **Important:** Communication routes must be added **AFTER** TCP or Serial Routes are configured in **Configuration Editors**>**PC Configuration**.

To add a **Communication Route**, open **Configuration Editors**/**Logger Channels**, double-click the **Source** (data logger or instrument) in the tree diagram, and click the **Communication tab**.

- ◆ Highlight the first empty row
- ◆ Click the arrow in the first column to select a **Route**. If no routes are in the drop-down list, click the **Add Device Route** button and the logger should be in the drop-down list.
- ◆ Assign a **Priority** number
- ◆ Select **Polling** and/or **Emulation** if applicable
- ◆ Optionally, enter an **Initialization Command and** and a **Final Command**
- ◆ Click the **Save** button.
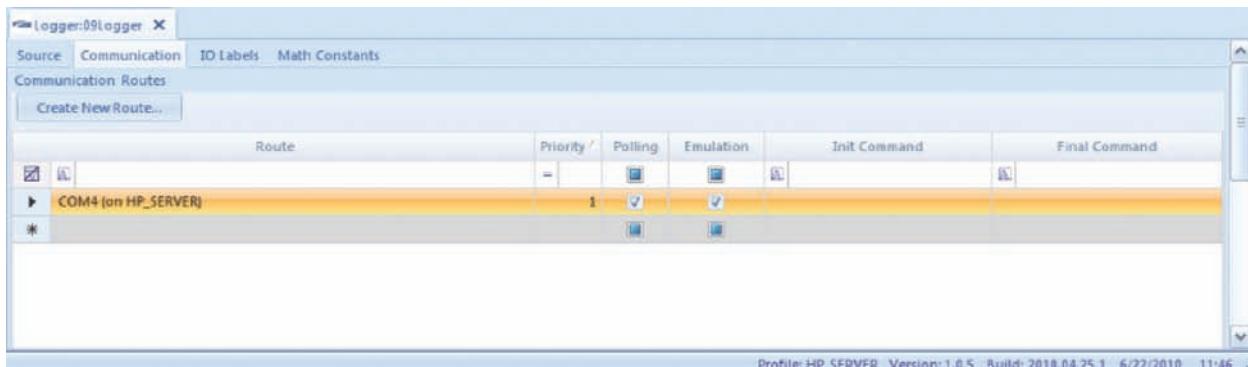
Associating Data Logger with TCP/IP connection to Driver in Configuration Editors > Logger Channels > Communication tab

Testing Your Connection--Linking to Logger

To test your connection, select **Link to Logger** from the **Utilities** menu. Select a logger from the drop-down list and click **Connect**. Linking to the logger means that you connection is good but does not ensure that you will be able to download or poll.

⇨ **Important::** Some configuration changes require you to restart the the AV-Trend System. If a **System Restart** is necessary, you will be prompted by AV-Trend when you click **Save**. If you click **Yes** at the prompt, AV-Trend will restart the system automatically. If a required system restart is not done, you will not be able to link to logger.. (Two system restarts may be necessary to synchronize the network for IP-based connections.)

▶ **Note:** If you need to restart the system manually, open the **Utilities** menu and select **System Restart**. Select an **Executive** in the **System Restart** screen, then click the **Restart Executive Service** icon in the upper left corner.
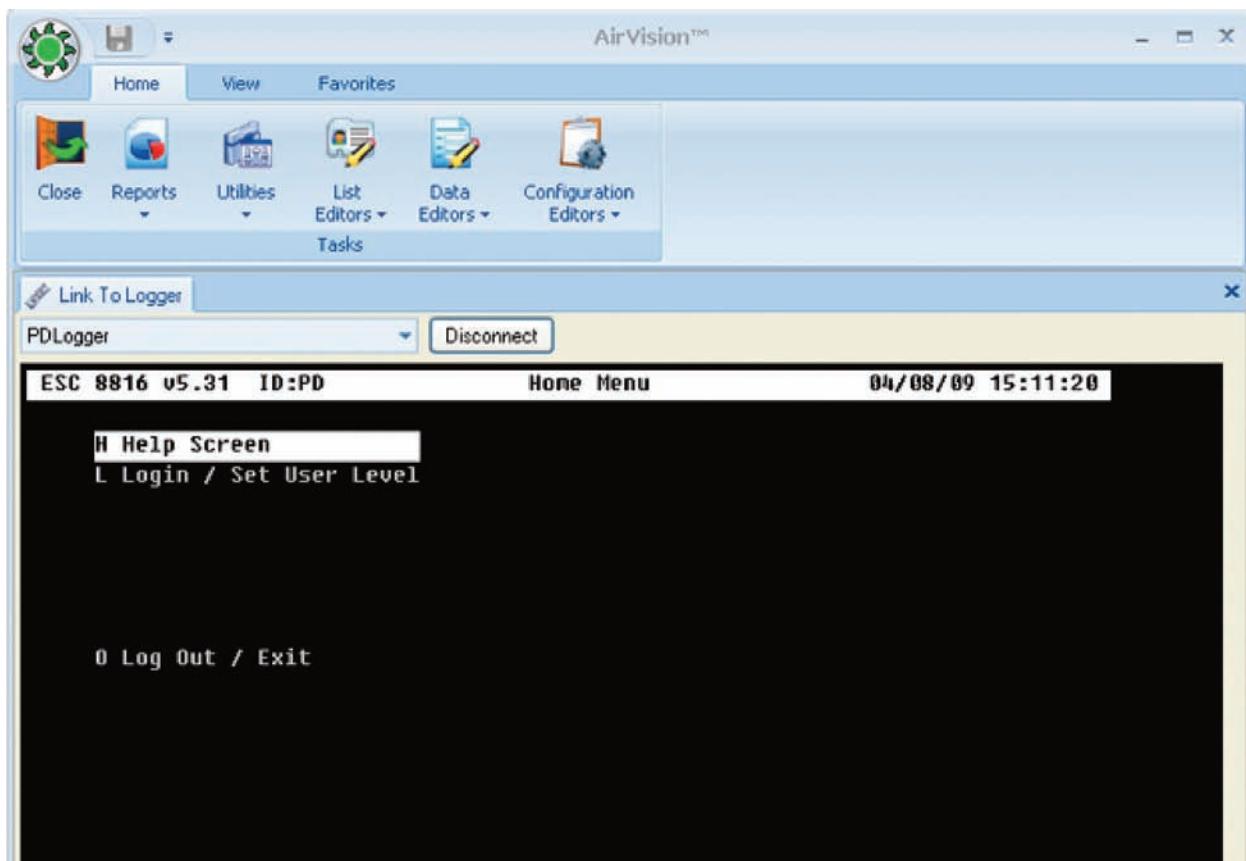
Testing your connection from Utilities > Link to Logger

Downloading Channel Configurations

To download channel configurations:

- ◆ open **Utilities** > **Logger Download**. Configuring channels was explained in the section "Adding Channels to Data Loggers."

- ◆ select the **Site**/**Source Name** and **Channels** for the **Download Type**

- ◆ click **Download**.

The **Log Viewer** will display details of the download in the bottom section of the screen.

▶ **Note:** The **Log Viewer** can also be accessed directly from the **Utilities** menu.

▶ **Note:** Multiple loggers can be downloaded at the same time without a cold start.
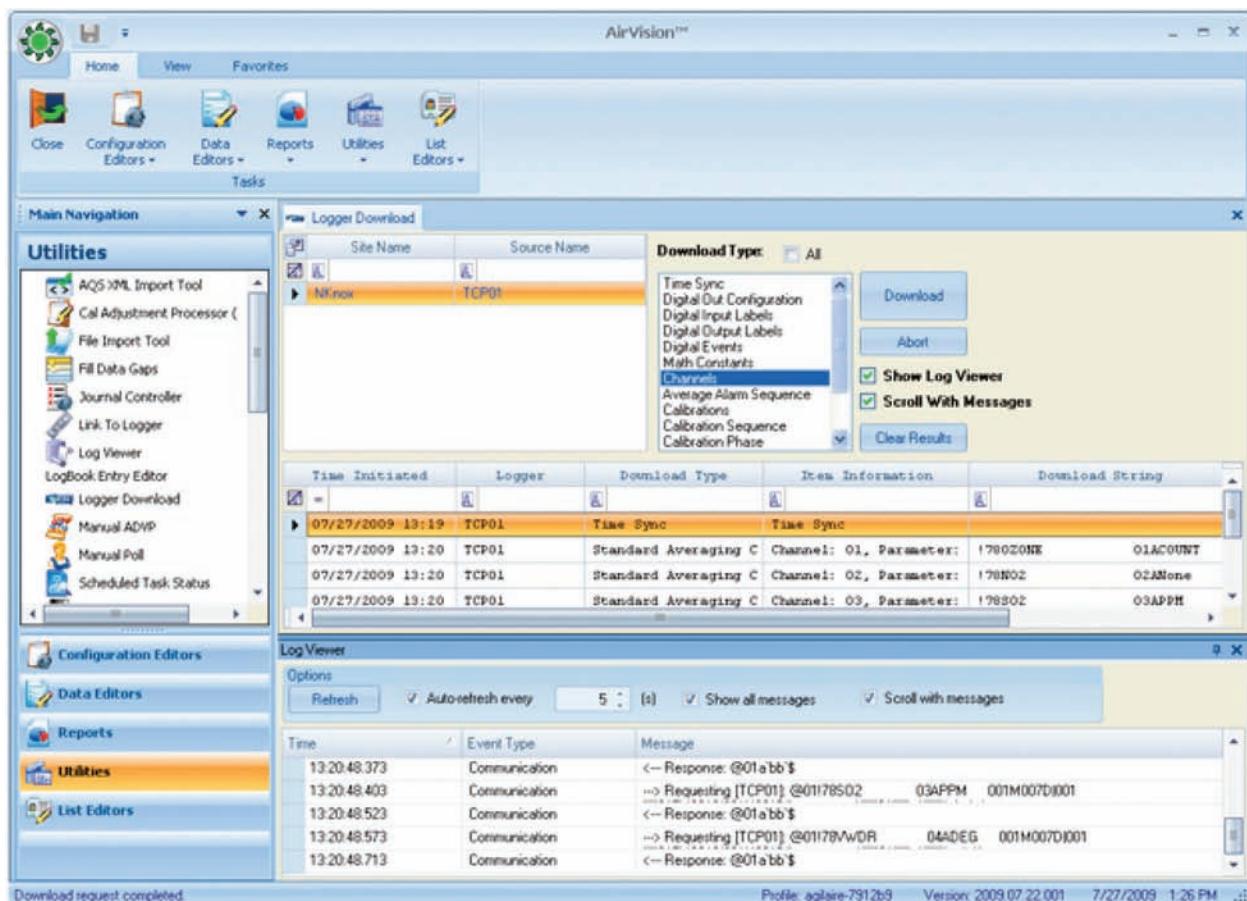
Channel Download in Utilities > Channel Download

Setting Up Calibrations

To configure calibrations:

- ◆ open **Configuration Editors** > **Logger Channels**
- ◆ highlight the **Logger** in the tree diagram
- ◆ click the small arrow under the **Add** button
- ◆ select **Calibrations** from the drop-down list
- ◆ select one of the following calibration types:
  Automatic
  Externally Initiated
  Instrument Controlled
  Interactive (Menu)
  User Initiated

For details about the remaining prompts, Consult the ESC Model 8816/8832 Data Logger Manual.

▶ **Note:** Configuration information must be downloaded to the data logger before a new sequence can be initiated.
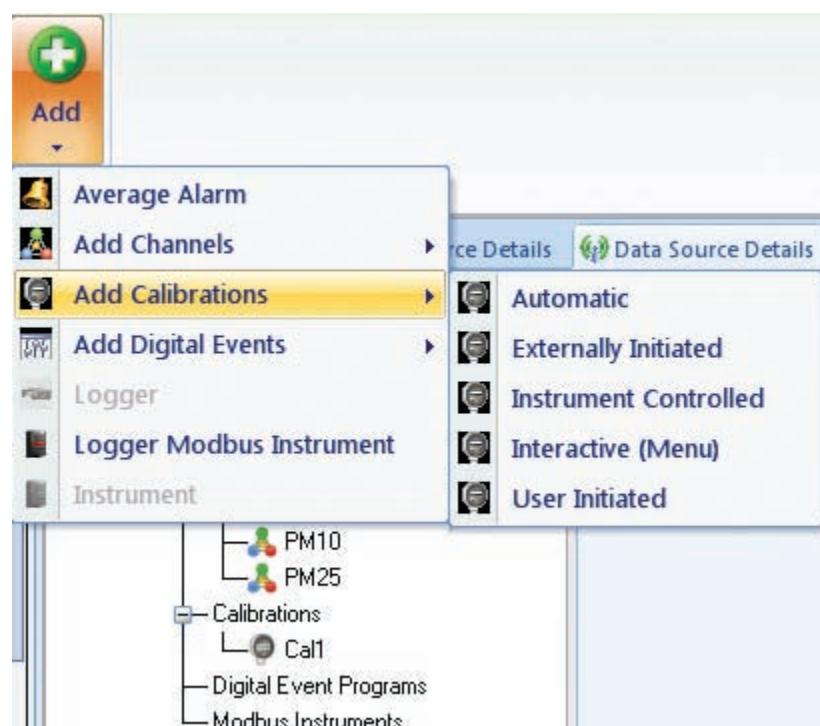
Adding calibrations in Configuration Editors > Logger Channels

Calibration Expected Values Editor

This mimics the "Quick Expected Values" editor in the Model 8832 data logger that allows the user to quickly update target values for the calibration without sorting through the Calibration configuration editor. The system shows all configured calibrations as expandable/collapsible boxes. Once opened, columns headers can be clicked to sort by phase name, expected value, etc. for easier data entry.

When values are saved, a pop-up window will prompt you to download changes to the data logger (8816 and 8832 only). Clicking **OK** will take you to the Logger Download form, where you can select the checkbox to only download the expected values.
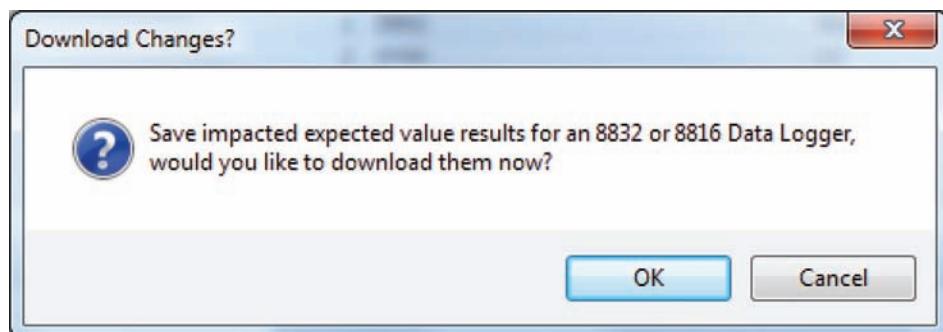
Configuring Automatic Calibrations

If you configure **Automatic** Calibrations, the cal you enable will be automatically initiated by the data logger's internal clock. The Automatic Cal Sequence configuration screen has the following fields :

- ◆ **Calibration Type** will be already filled in (Automatic_A).
- ◆ **Calibration Name** is required to identify the cal program.
- ◆ Check **Enabled** if the calibration is to run.
- ◆ **Number of Calibration Records** determines how many cals the data logger will store before overwriting.

- ◆ **Recovery Time** specifies the time required to purge cal gas after phases.
- ◆ **Repeated Interval** determines how often cal sequence will repeat.
- ◆ **Start Time** determines what time cal sequence will start.
- ◆ **Affected Channels** determines which channels will be taken off-line during cal. Select from a list of previously configured parameters.
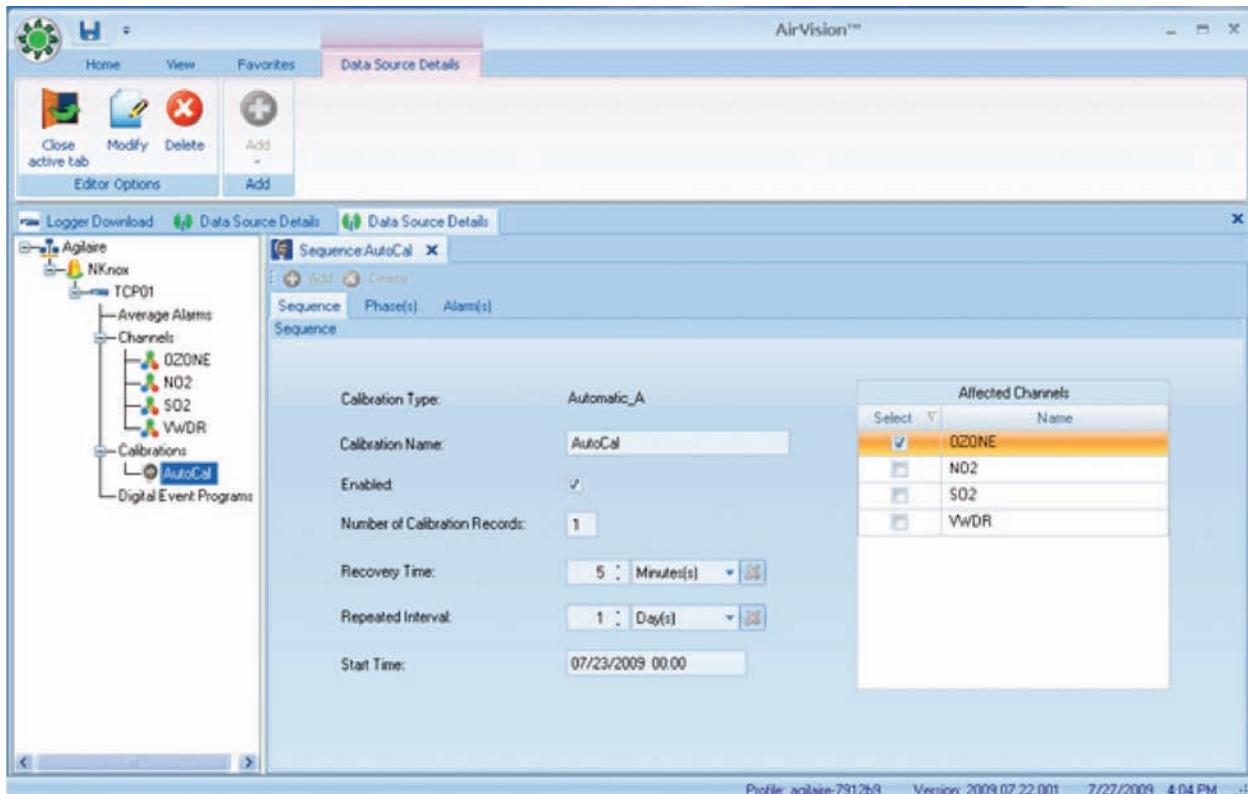
Automatic Calibration configuration in Configuration Editors > Logger Channels

Configuring Phases

To set up Phases:

◆ click the **Phase(s)** tab behind the Sequence Cal tab.

◆ To enter a phase name, click the click the **Add** (above the tabs) and select **Phase** from the drop-down list.

◆ Enter a **Phase Name**, **Phase Number**, **Duration Type**, **Response Time**, and click to check the box in the **Enabled** column.

◆ To configure a **Status Pattern**, click in the **Status Pattern** column and a check list of **Output Control Patterns** will come up.

◆ After the Phase table is configured, click **Add** again and select **Phase Channels**.

◆ Select a **Channel** from a drop-down list, and optionally enter an **Expected Value**, **Expected Value from Constant**, **Warning Drift Limit**, **EV for Auto Correct** (click to enable), **Store Cal Results** (click to enable), **Write Result to Constant**, **Error Method**, **Write Expected Value to Constant**, and **Out of Control Limit**.
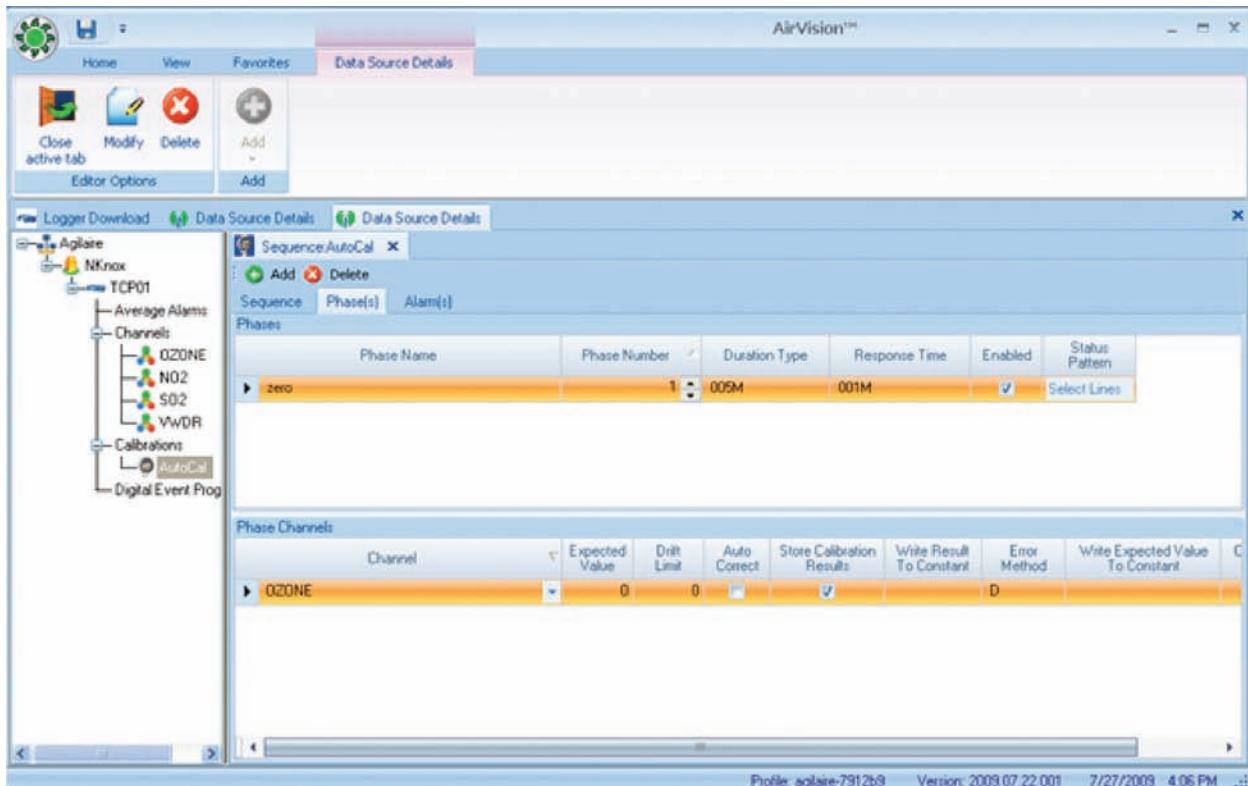
Configuring calibration phases in Configuration Editors > Logger Channels

Externally Initiated Calibration

Externally initiated calibration is identical to an automatic calibration except for the way it is initiated. The sequence is started when a specified pattern of input control lines is met. To configure the **Start Pattern** (Line Status Pattern), click the **Start Pattern button**.

Individual phases are then initiated sequentially. As with an automatic calibration, the duration of each phase in the sequence can be specified.
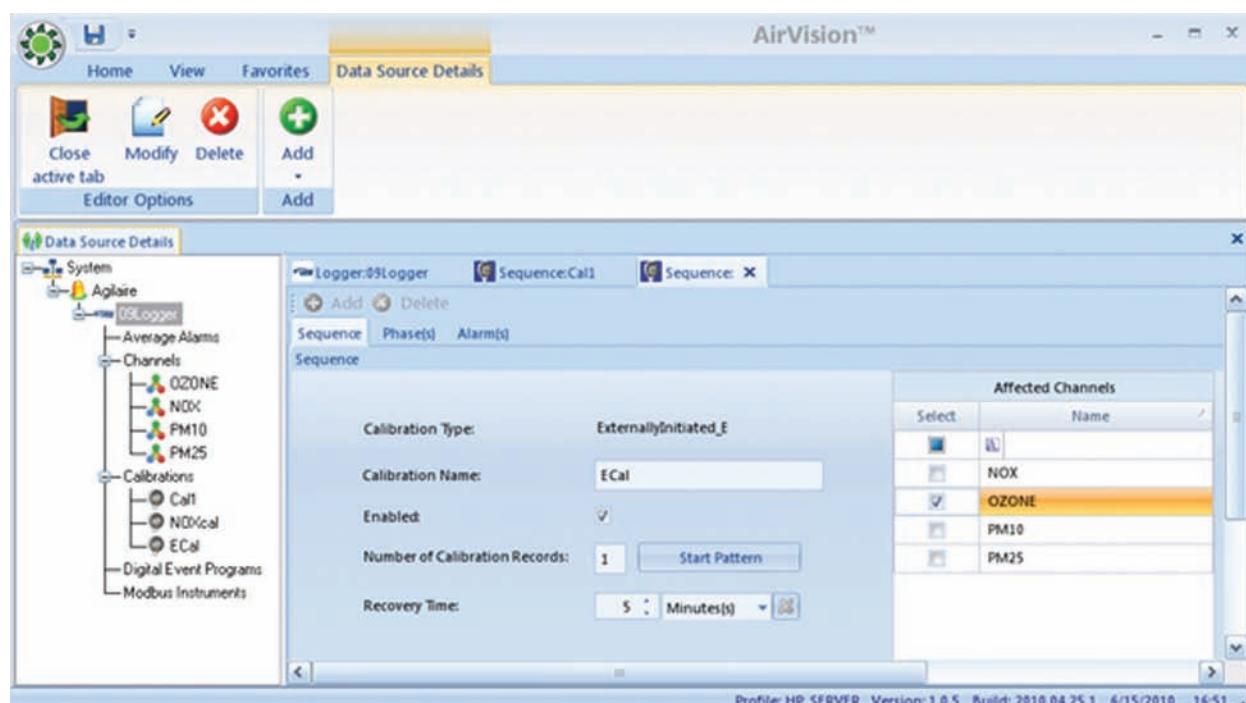
Configuring Externally Initiated Calibrations in Configuration Editors > Logger Channels

When you click the **Start Patter**n button in the **Externally Initiation Calibration** screen, you **will see a Line Status Pattern** screen. Check the **Select** box to select an **Input Line** and select a **Status** of **On** or **Off**. The Externally Initiated Cal will begin when the **Start Pattern** is met.
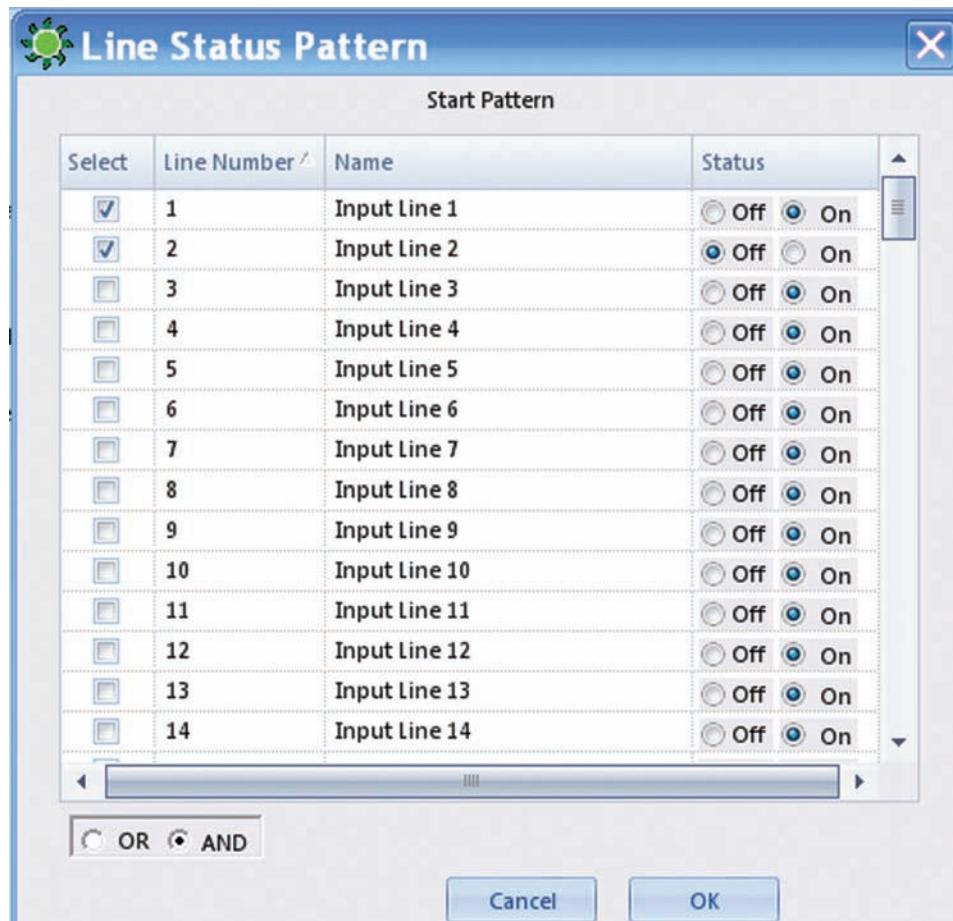
Configuring Start Pattern (Line Status Pattern) in Externally Initiated Calibrations in Configuration Editors > Logger Channels

Configuring Instrument Controlled Calibrations

If you configure **Instrument Controlled** Calibrations, enabled calibrations will be initiated by the data logger when it detects a specified digital input pattern. Each phase will continue until the input line pattern changes. The Instrument Controlled Cal screen has the following fields:

- ◆ **Calibration Type** will be already filled in (InstrumentControlled_I).
- ◆ **Calibration Name** is required to identify the cal program.
- ◆ Check **Enabled** if the calibration is to run.
- ◆ **Number of Calibration Records** determines how many cals the data logger will store before overwriting.
- ◆ **Recovery Time** specifies the time required to purge cal gas after phases
- ◆ **Affected Channels** determines which channels will be taken off-line during cal. Select from a list of previously configured parameters.
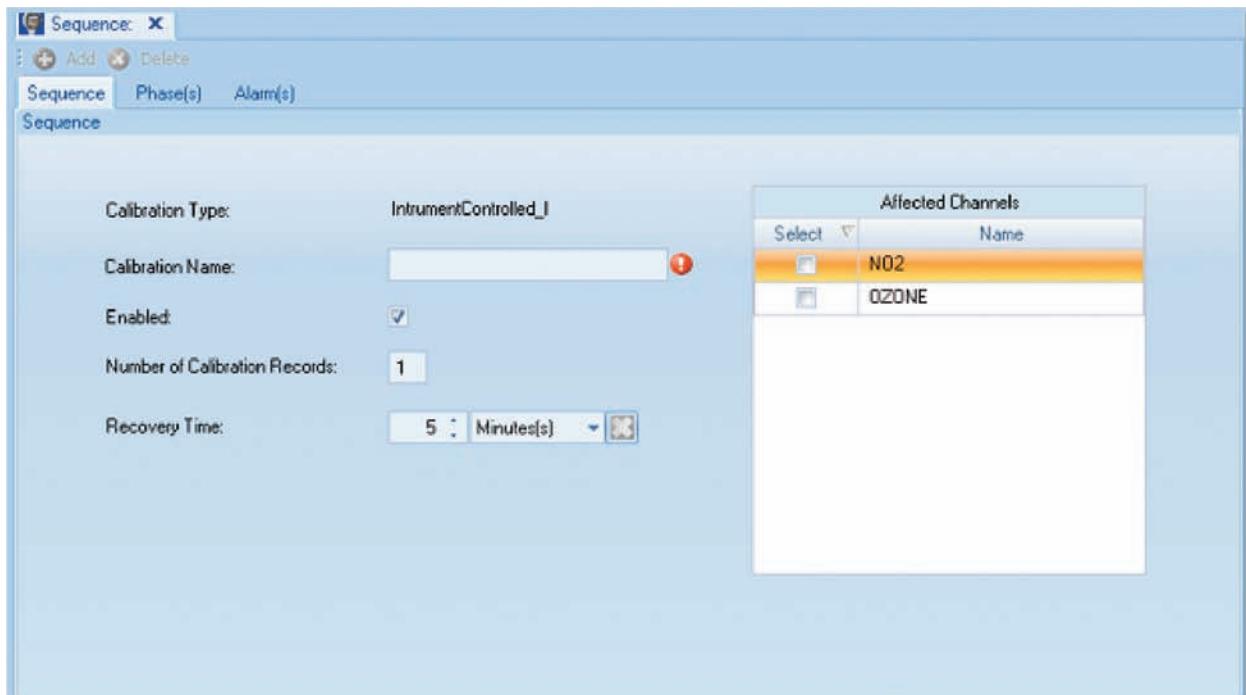

Configuring Instrument Controlled Calibrations from Configuration Editors > Logger Channels

Configuring Interactive (Menu) Calibrations

If you configure **Interactive** Calibrations, enabled cals will be controlled by a user via a menu interface. Interactive cals are often used for highly manual procedures, such as testing opacity instruments against standard filter. Interactive Cal configuration screen has the following fields :

- ◆ **Calibration Type** will be already filled in (Interactive_M)
- ◆ **Calibration Name** is required to identify the cal program.
- ◆ Check **Enabled** if the calibration is to run
- ◆ **Number of Calibration Records** determines how many cals the data logger will store before overwriting.
- ◆ **Recovery Time** specifies the time required to purge cal gas after phases
- ◆ **Affected Channels** determines which channels will be taken off-line during cal. Select from a list of previously configured parameters.
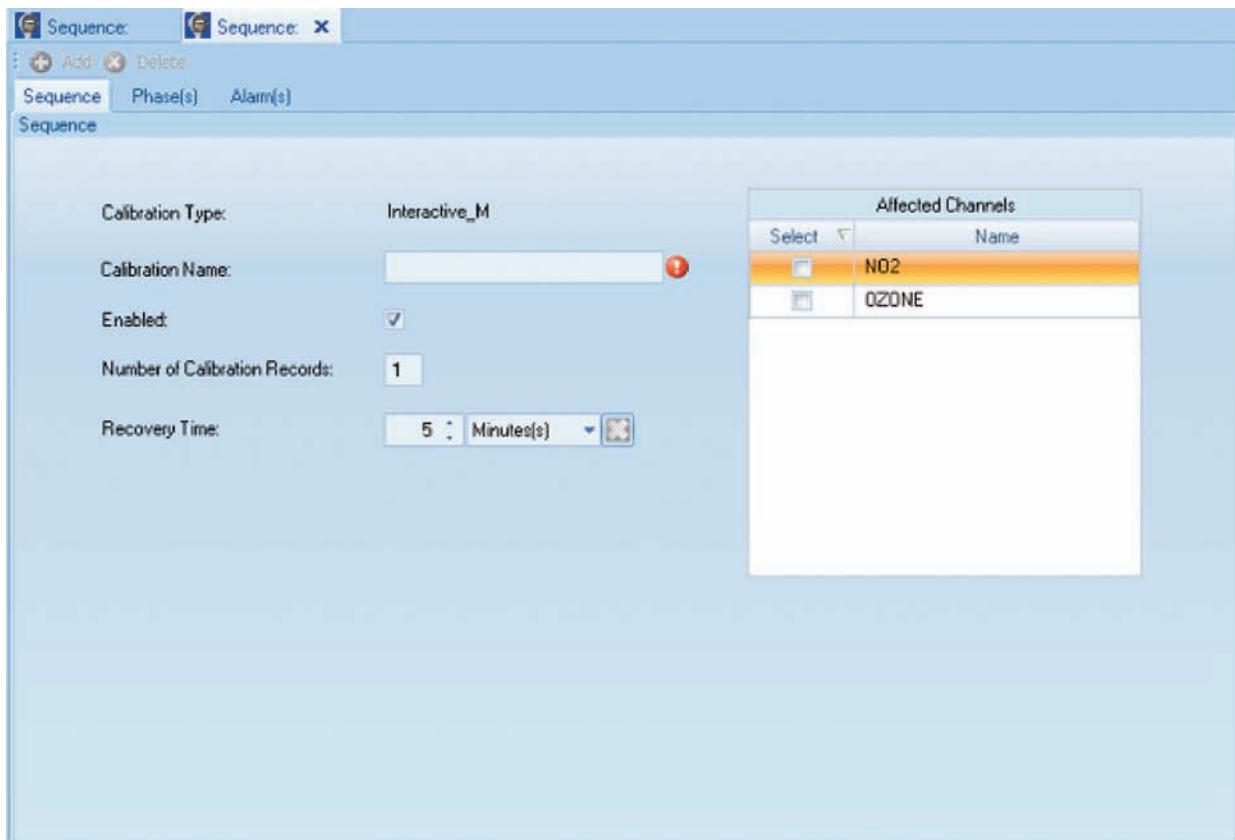
Configuring Interactive (Menu) Calibrations

Configuring User-Initiated Calibrations

Suer-initiated calibrations are started manually by linking to the data logger. When the cal sequence is started, each phase will be initiated in order. The duration of each phase is configured with the same fields as automatic cals.

The User-Initiated Cal configuration screen has the following fields :

- **Calibration Type** will be already filled in (UserInitiated_U).
- **Calibration Name** is required to identify the cal program.
- Check **Enabled** if the calibration is to run.
- **Number of Calibration Records** determines how many cals the data logger will store before overwriting.
- **Recovery Time** specifies the time required to purge cal gas after phases.
- **Affected Channels** determines which channels will be taken off-line during cal. Select from a list of previously configured parameters.
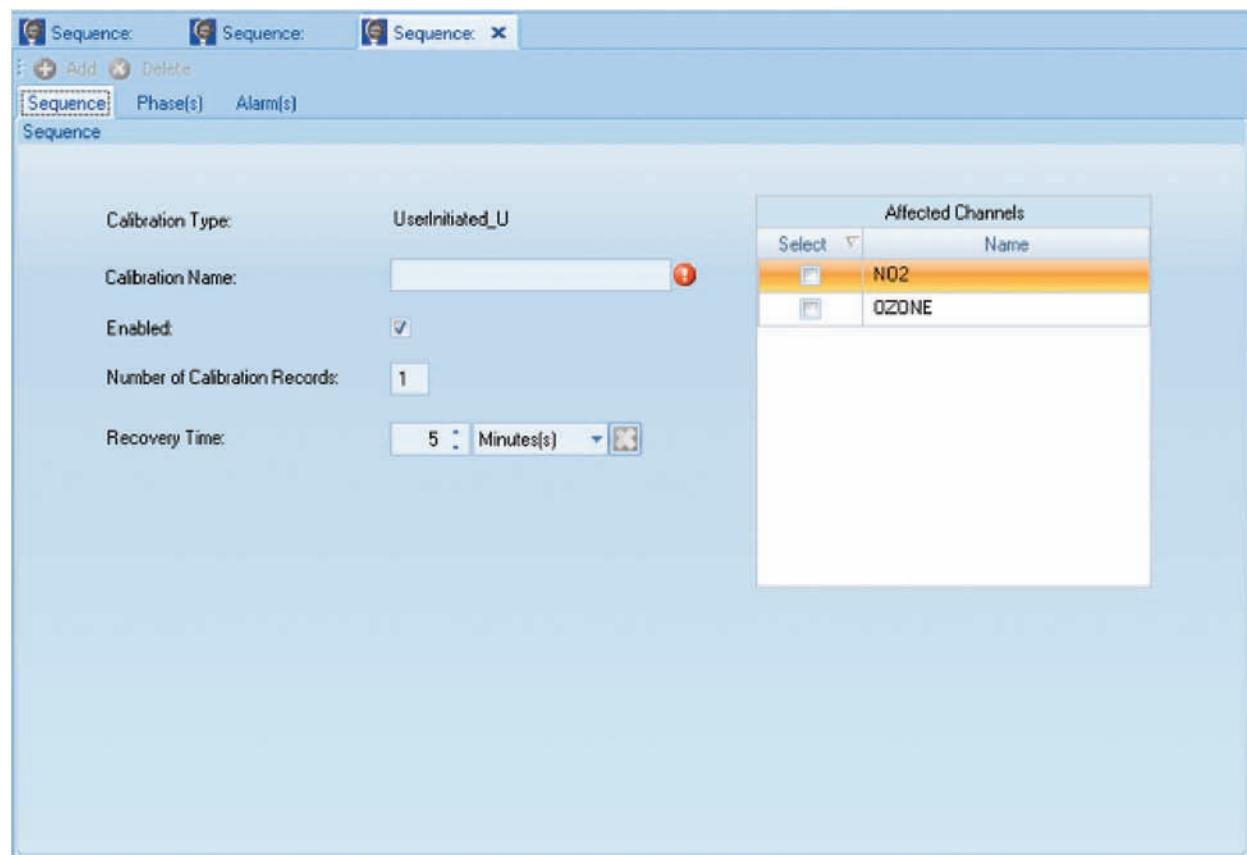
Configuring User-Initiated Calibrations

Configuring Input/Output Lines for Digital Events

The purpose of digital event programs is to control processes from 8816 or 8832 Data Loggers. **Digitally Timed Events** will turn on specified **Output Lines** for the configured **Starting Time**, **Duration**, and **Repeat Interval**. **Digitally Triggered Events** are initiated by a digital input pattern that will turn on one or more digital output lines. The output lines will remain active for the specified duration; at the end of this time, the output lines will be turned off unless the triggering digital input pattern still matches.

Configuring Digital Timed Events

1. Highlight the **Data Logger** in **Configuration Editors > Logger Channels** tree menu.

2. Click the green **Add** button in the ribbon and select **Add Digital Events > Timed Event**.

3. Enter a **Digital Event Program Name**, a **Starting Time**, **Output Durations**, **Repeat Interval**, and check **Enabled**.

4. If the Digitally Timed Even is for a calibration, select a **Calibration Name** from the drop-down list.

5. Click the **Output Lines** button to bring up the **Line Status Pattern** screen and select a **Line Number**. Click **OK**.
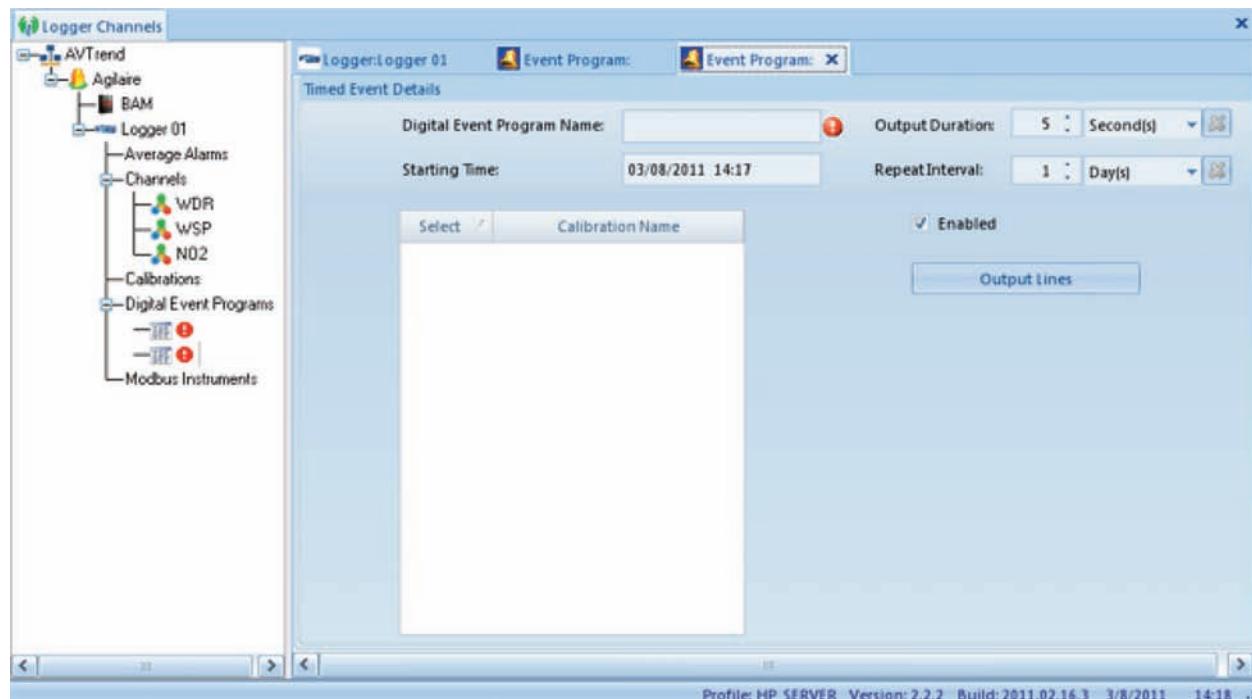
Configuring Digitally Timed Events
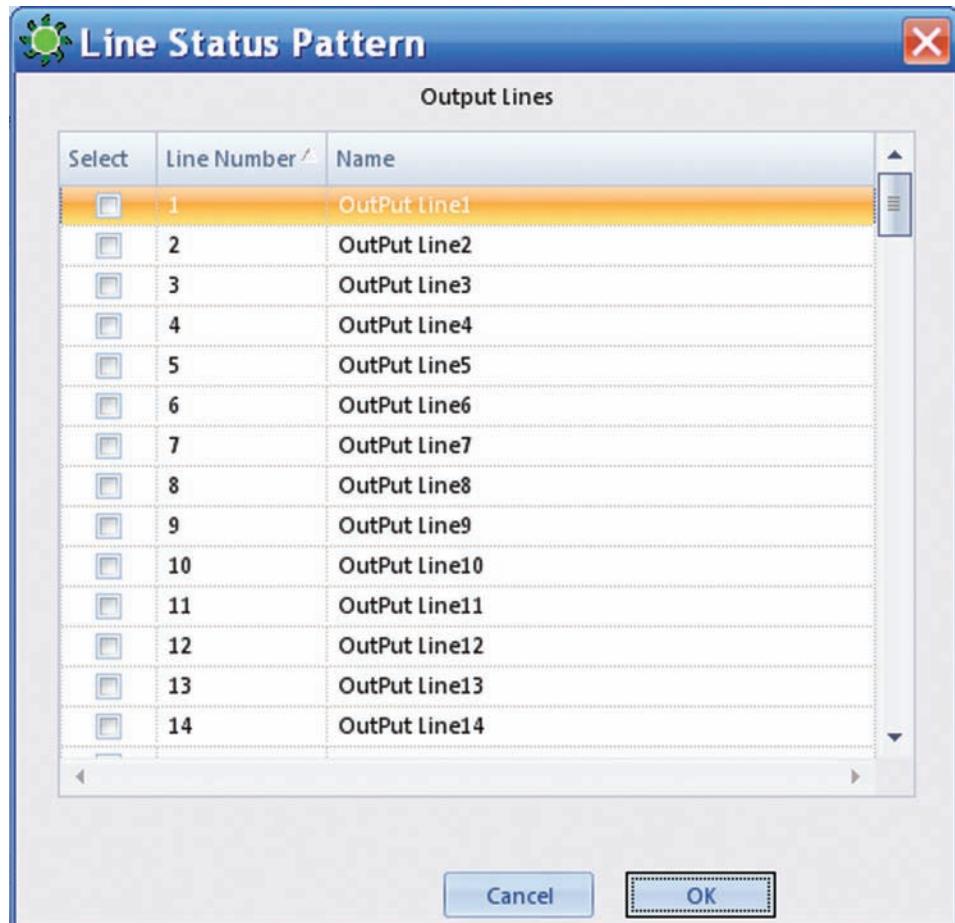
Line Status Pattern for Output Lines

Configuring Digital Triggered Events

1. Highlight the **Data Logger** in **Configuration Editors > Logger Channels** tree menu.

2. Click the green **Add** button in the ribbon and select **Add Digital Events > Triggered Event**.

3. Enter a Triggered **Digital Event Program Name**, an **Output Duration** and check **Enabled**. After the output duration time period, the program will check the digital input pattern to see if it still matches. If not, the output control lines will be switched off. If the pattern still matches, the output relays will remain on, and the duration time will begin again.

4. If the Digitally Triggered Event is for a calibration, select a **Calibration Name** from the drop-down list.

5. Click the **Output Lines** button to bring up the output **Line Status Pattern** screen and select which **Output Line or Lines** will be switched on when the triggered digital input pattern occurs. Click **OK**..

6. Click the **Trigger Digital Event Pattern button** to bring up the **Line Status Pattern** screen for Trigger Digital Input Pattern and select which **Input Line**.or **Lines** turned **On** or **Off** will trigger the event and switch on the specified **Output Line(s)**..

7. In the lower left corner of the screen, select **And** or **Or**. If you select **And** (the default), the digital event program will be triggered **only if ALL** the specified conditions occur. If you select **Or**, the digital event program will be triggered if **ANY** of the specified conditions occur. Click **OK**.
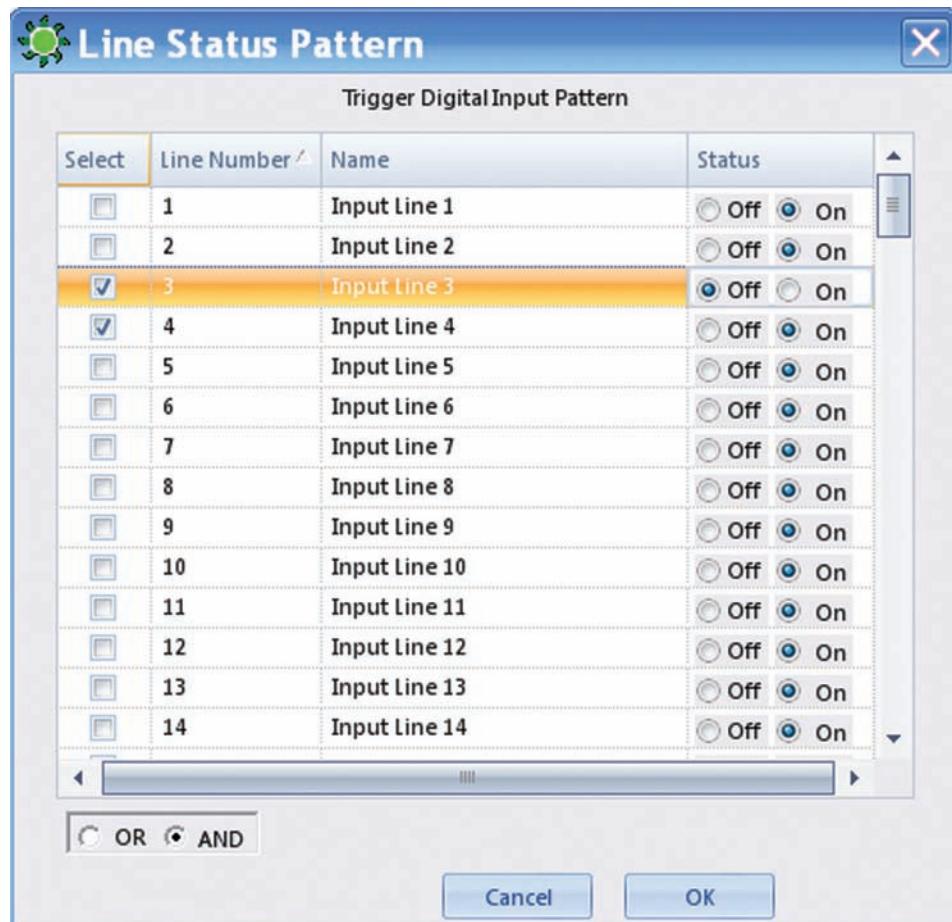
Trigger Digital Input Line Status Pattern with OR/AND selection

▶ **Note:** AV-Trend (version 2.1 and up) supports download of logger I/O labels with a different number of inputs and of outputs.. If the number of input and output cards on your data logger are not equal, you may encounter some download errors when downloading the labels. If this happens, define the actual number of physical inputs and outputs using the **IO Labels** tab. If you are using pseudo inputs/outputs, do NOT accept allowing the system to change the number of labels.
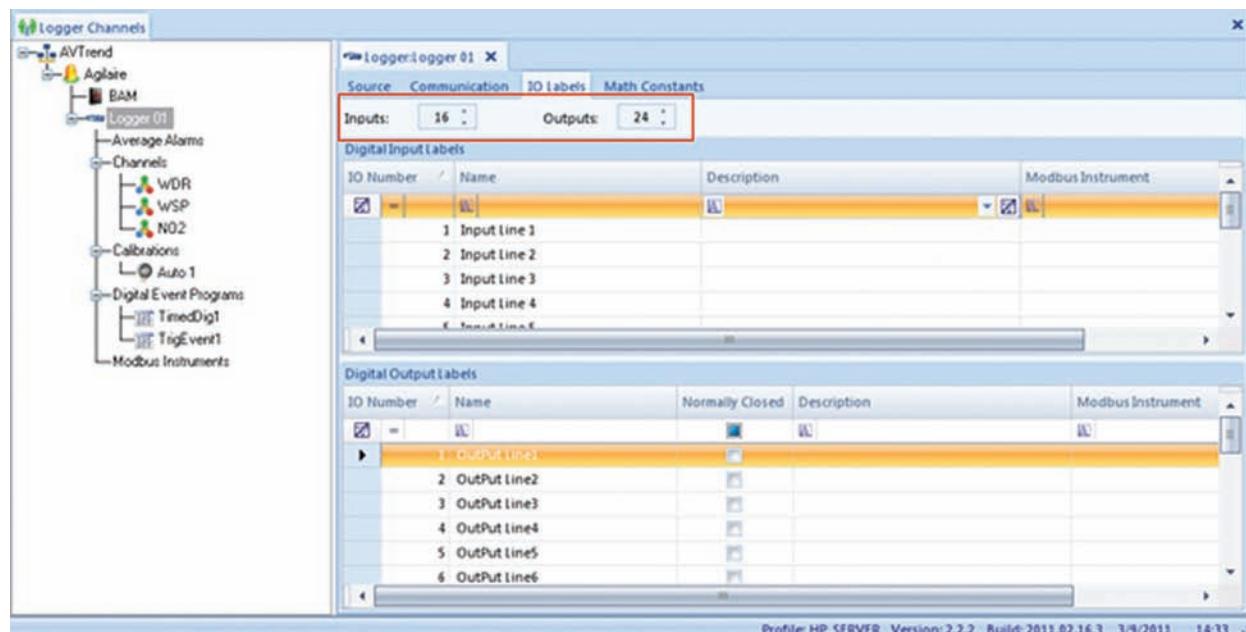
Different number of Inputs and Outputs Configuration Editors > Logger Channels > double-click Logger in tree menu > I/O Labels tab

Configuring DI-Triggered GSI Events

These events are used to send GSI strings based on the transition of a digital input (or of a pseudo DI-DO pair in the logger). Commonly, these are used to control RS-232 based calibrators or other devices. For this device, a digital input pattern is defined. When the logger sees the digital input transition to match this pattern, the GSI string is sent out the designated serial port (just once). The string is not resent until the logger goes to a non-matching input state, and then back to the matching state.

Triggered GSI Event

Digital Event details
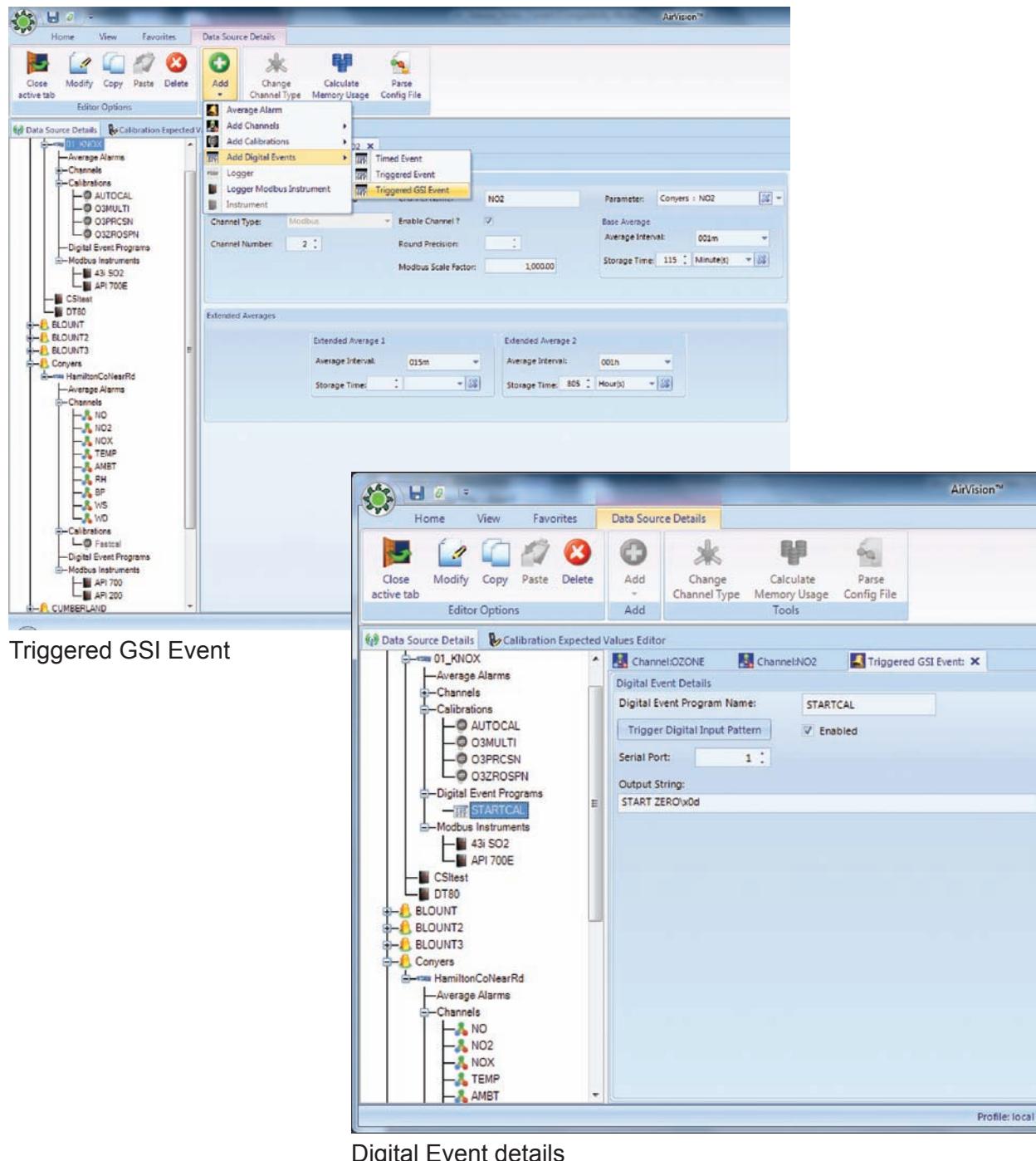
Scheduling Tasks

All automatic actions in AV-Trend are managed by the **Task Manager**, which runs as part of the background AV-Trend service. The Task Manager has three user interfaces:

◆ **Task Scheduler** (**Configuration Editors** > **Task Scheduler**) allows you to add, review, and edit individual and grouped task events.

◆ **Task Wizard** (**Configuration Editors** > **Task Scheduler** >**Run Schedule Wizard** button in ribbon at top of screen) allows you to create grouped polling events as well as events triggered by polling.

▶ **Note:** This Wizard is ONLY used for setting a Model 8872 to poll another device, like an instrument or another Model 8816 / 8832 data logger. It is not related to another server polling the 8872 itself.

◆ **Task Display (Utilities** > **Scheduled Task Status**) is a constantly updating display of all tasks within the system, including the last time run, next execution time, and errors experienced during the last run.

The following tasks can be configured in the Task Scheduler, depending on your licensed options:

◆ Alarm Processing Task
◆ Average Data Purge Task
◆ Average Rollup Task
◆ Database Sync Task
◆ Fill Average Data Gaps Task
◆ Instrument Poll Task

◆ Journal Message Purge Task
◆ Logger Poll Task
◆ Scheduled Command Line Task
◆ Scheduled Report Task
◆ SQL Execution Task
◆ New Task Group

Task Scheduler

The Task Scheduler screen has three sections:

◆ **Task Schedule** displays all scheduled tasks and cannot be edited.

◆ **Task Schedule Details** section is where you select an **Executive**, and **Start Time**, and a **Repeat Interval**. **Enabled** must be checked in this section before you can select **Enabled** in the **Scheduled Task Selection** section.

◆ An **Advanced** tab is provided next to the repeat interval to allow the user to specify if the task is only to run on certain days of the week, or only in a 'window' of certain hours of the day. This is especially useful for polling tasks.
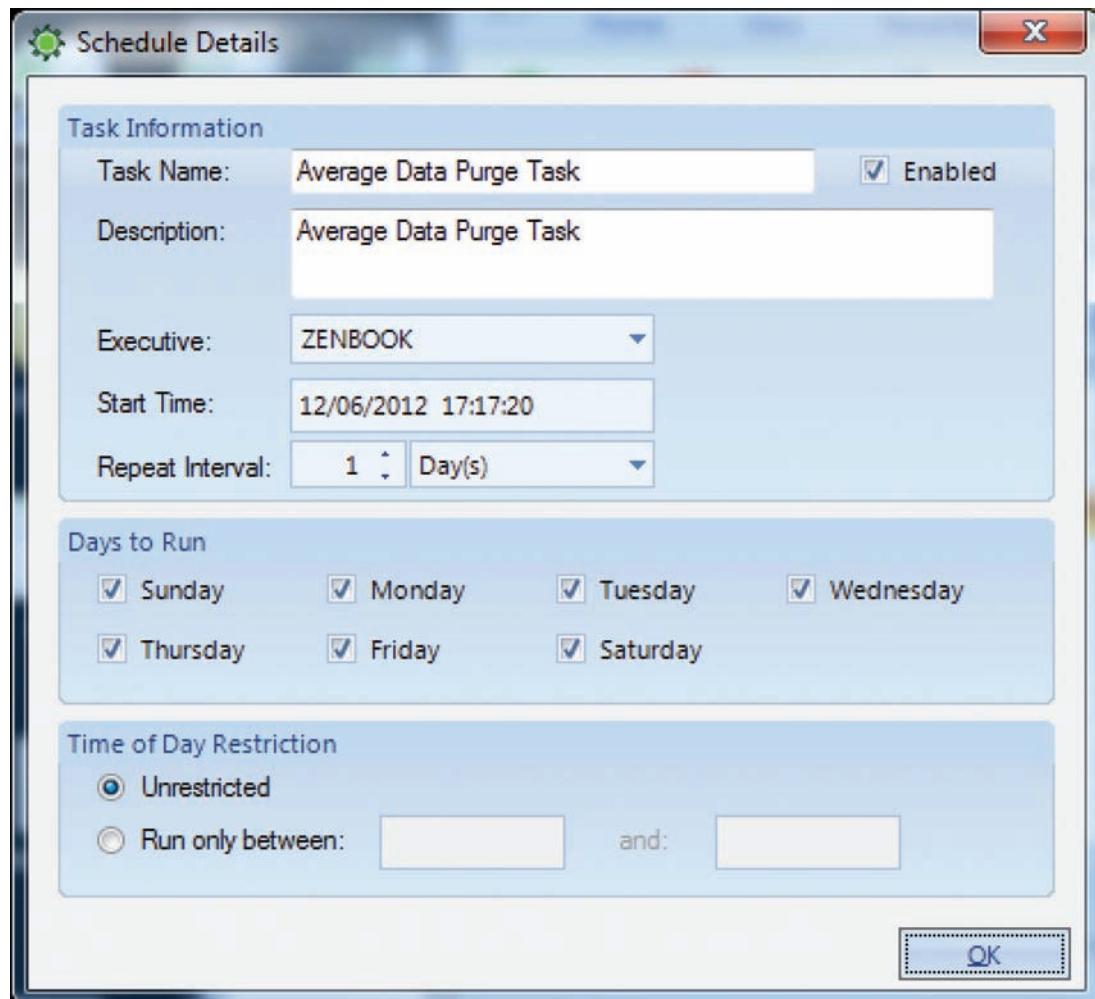
Task Scheduler showing a Logger Poll Task (Configuration Editors > Task Scheduler)

◆ The **General Tab** in the **Task Details** section is where you enter a **Task Name** and a **Task Description**. **Task Enabled** must be checked in this section before you can select **Enabled** in the **Scheduled Task Selection** section.

The **Advanced Options** tab in the **Task Details** section defines the **Number of Retries**, the **Interval between Retries**, and whether to **Log Status Messages** as **Off**, **Information**, **Verbose** (for a problematic task), or **Debug**.

The **Notifications** part of the **Advanced** tab allows configuration of **Notification Type** (All Exceptions and Errors; All Exceptions, Errors, and Warnings; All Exceptions; First Error and RTN (Return to Normal); or Each Time it Runs) followed by a **Description** of each Notification Type.

To configure an individual task in the **Task Scheduler** (**Configuration Editors** > **Task Scheduler**), click the **Add** button in the ribbon at the top of the screen and select one of the following categories:

◆ **Alarm Processing Task** reviews alarm Triggers for matches, creates alerts, and tells AV-Trend when to process a particular alarm rule. If you use task groups and designate tasks to run in sequence, you can designate alarms to processed immediately after a data poll. (Alarm Processing is not used in AV-Trend.)

◆ **Average Data Purge Task** purges or archives old data from the database. Eventually, the AV-Trend database becomes so big that it takes a long time to back it up, so it is helpful to remove and/or save old data, in particular minute data. You can choose any average interval to be scheduled for Purge or Archive. Purged data will be permanently deleted from the database. Archived data is copied to an external file before purging. Archived data is stored with all flags and annotations and can be re-imported later. AV-Trend uses specialized data keys so sites and channels can be renamed or renumbered and archived data can still be correctly imported. Select the age of the data to purge: **Purge Data Older Than** a specified number of seconds, minutes, hours, days, weeks, or years. We recommend purging 1-minute data older than 1 year to keep the database within allowable size.

▶ **Note:** Average Data can be purged manually via the **Utilities menu>Purge Average Data**.

A checkbox option allows you to **retain data during calibrations**. If selected, any data flagged with the **C** flag will not be purged. This allows you to retain minute data from calibrations (e.g., for use in the Calibration Trend Graph's Response Plot) while still removing old minute data.

Purge or archive data in Configuration Editors > Task Scheduler

◆ **Fill Average Data Gaps Task** prepopulates Average Data Records to make them continuous where data is missing. This task inserts top of the day blank records in the database to improve reporting and data query performance. Filling average data gaps is critical for optimizing the performance of AV-Trend reporting, and should be configured to run every day after midnight in every system.Each system needs only one of these tasks. The screen defaults to a repeat interval of one day and a time to run of 00:00:00 (midnight).

◆ **Journal Message Purge Task** removes Event Log journal messages (internal error logs) that are older than a specified age in seconds, minutes, hours, days, weeks, or years. The purge occurs at a specified **Repeat Interval**. An option is available to **Archive Data Before Purging**. Agilaire recommends purging entries older than 2 weeks.

◆ **Logger Poll Task** polls a data logger at a specified Repeat Interval in seconds, minutes, hours, or days. The Task must be named and a data logger must be selected. Select a Logger Command from the following drop-down list:

56	Average Data
46	Calibration Results
IJ	Instantaneous Readings
LL	Poll Current Time
DD	Poll Input Status Lind
23	Poll Current Digital Input
NP	Poll Alarm Journal Entries
BB	Synchronize Logger Time
JK	Poll Long Central Messages
KK	Poll Chart Memos
EF	Power Failure Log

▶ **Note:** The logger also can be polled manually via **Utilities>Manual Poll**.

◆ **Scheduled Command Line Task** allows you to automatically execute any DOS command line, such as a batch file or .exe file (e.g., NTbackup.exe).

◆ **Scheduled Report Task** automatically sends scheduled reports to a designated printer, emails reports to configured recipients, or saves them to a file.

   ◆ Click the green **Add** button and select **Scheduled Report Task**

   ◆ In the **Task Schedule Details** section, select **Executive, Start Time,** and **Repeat Interval**.

   ◆ In the **Task Details** section, enter a **Task Name** and enter an optional **Task Description**, and click to select **Enabled**.

   ◆ In the **Report Task Options** section, select a **Report** from the drop-down list.

   Click the **Configure Report Query** button to select **Date Range**, **Average Interval**, and **Parameter(s)**. The **Query String** will be displayed near the bottom of the screen. Click **OK** to save the configuration.

   ◆ In the **Output Options** section, click the **Printing Options tab** if the report will be printed. Select **Enable Printing** and designate the **Printer Path**.

   ◆ If the report will be emailed, select the **Notifications Options tab**, check **Enable Notifications**, and enter a **Notification Publication Description**. (**Users** and/or **User Groups** must be designated in **Configuration Editors** > **Security** before Notifications will be sent.)

   ◆ If the report will be saved to a file, open the **File Output Options tab** and select an **Output File Type** (comma separated, Excel, image, text, HTML, PDF, or rich text) from the drop-down list. This option can be used to write the scheduled report to a local or network drive, and/or to FTP the file to a particular FTP serve.

   Enter a **File Output Base Name**. (Windows does not allow "/" or ":" characters in file names.)

   The **File Extension** will be filled in automatically from the Output File Type selected.

   To have the scheduled task append the current date/time to the file name, select **Append Date to Name** and a **Date Format**, for example, Daily_ Sum201106271900. Selecting this option ensures that new files do not overwrite existing files in the directory. If this option not selected, the task will overwrite the file each time the task runs.

   To **Save** the file, check **Save Report to File Enabled** and browse to a **File Output Path**.

   To **Upload File Via FTP Options**, select **FTP Upload Enabled** and select an **FTP Transfer Program** from the drop-down list of configured FTP programs.
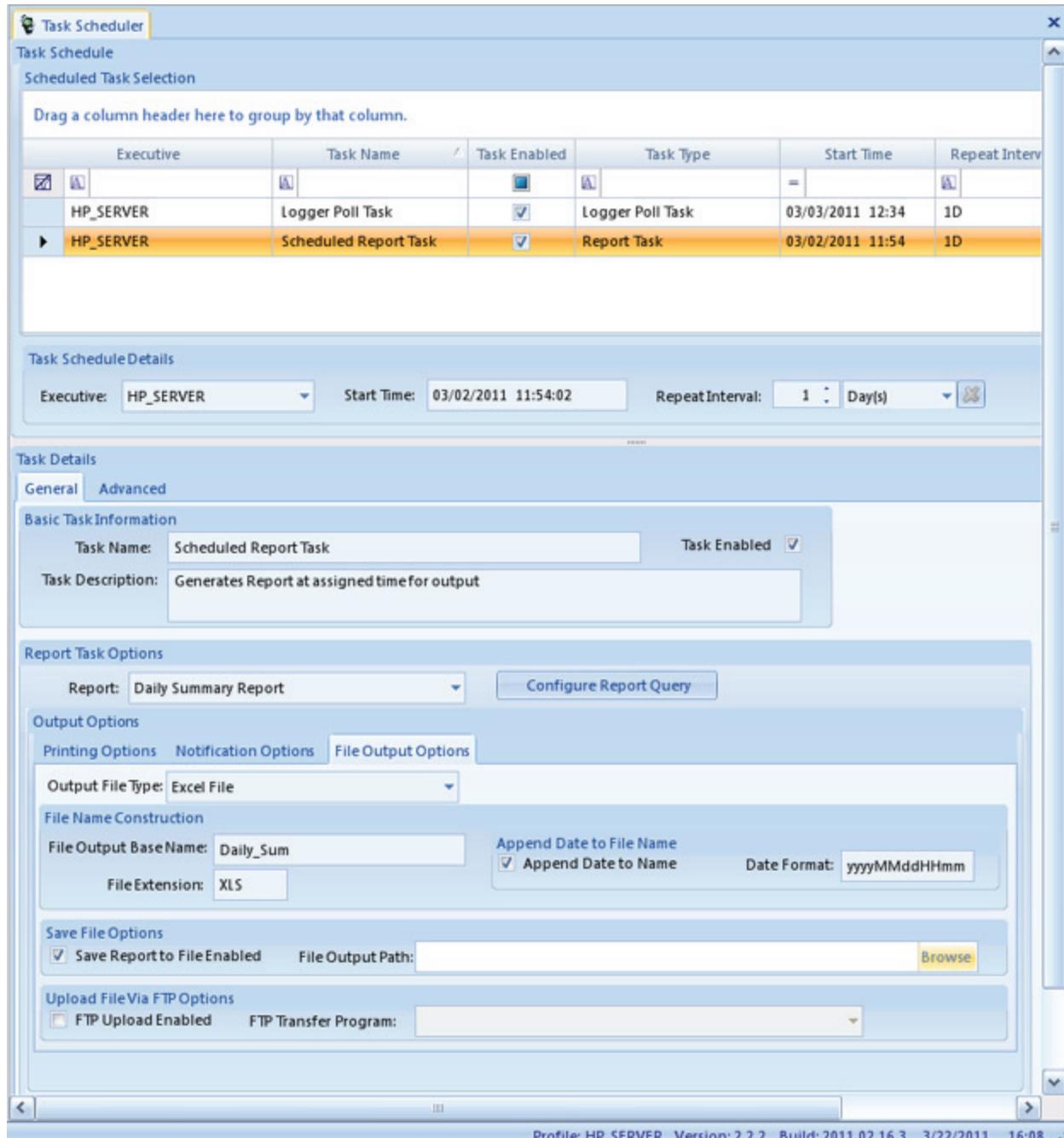
Schedule Report Task (Configuration Editors > Task Scheduler > Add Scheduled Report Task)

◆ **SQL Execution Task**

     ◆ To add a **SQL Execution Task,** click the green **Add** button on the ribbon and select **SQL Execution Task.**

     ◆ **Select the Executive, Start Time, and Repeat Interval.**

     ◆ Name the SQL task or use the default name.

     ◆ Enter the **SQL Command Text**.

     ◆ Click the **Save** button.

◆ **New Task Group**
Task Groups allow multiple tasks to be grouped together in one polling process instead of multiple individual tasks. A Task Group consists of Sub Tasks. Tasks can be defined to run groups in parallel, sequentially, or as sub tasks of other task groups to allow mixing of parallel and sequential operations.

     ◆ To create a Task Group, click the green **Add** button on the Ribbon in the **Task Scheduler** and select **New Task Group**.

     ◆ In the **Task Schedule Details** section of the Task Scheduler, select an **Executive**, **Start Time**, and **Repeat Interval**.

     ◆ In the **Task Details** section of the screen, enter a **Task Name**. The **Task Description** will be filled in automatically, but it can be modified.

     ◆ Check **Enabled** if you want the Task Group to be activated when you save it.

     ◆ In the **Group Options** section, check the box if you want to **Execute the Tasks in Paralle**l; otherwise, they will be executed sequentially or as sub tasks of other task groups.

     If the sub tasks are to be run sequentially, leave the **Execute the Tasks in Parallel** box unselected and enter a number in the **Execution Order** column in the **Sub Tasks** section.

     ◆ To create the Task Group, add a **Sub Task** to the Task Group. Click the green **Add Sub Task** button in the **Task Details** section and select a task from the drop-down list. (The Sub Task drop-down list has the same options as the Add task button at the top of the Task Scheduler.)

     ◆ When you select a Sub Task from the list, a new screen will pop up for the Sub Task you selected. Fields in the pop-up screen vary according to which sub task is selected.

     ◆ **Advanced Options** in the pop up screens (not required) allow configuration of **Number of Retries** and the **Interval between Retries**.

     ◆ When you configure the Sub Task and click **OK** in the pop-up screen the new **Task Name** will be added in the **Sub Tasks** section. The Task Name can be modified.

◆ Select the **Fail Group on Error** column in the **Sub Tasks** section if you want the whole Task Group to stop running if an error occurs.

◆ **Task Type** in the **Sub Tasks** section indicates the sub tasks that are part of one group task.

◆ Click in the **Edit Task** field to make changes in the same pop-up window that came up when the **Add Sub Task** button was clicked.

◆ To remove a task from the Task Group select the task in the **Sub Task** section and click the **Delete Selected Sub Task** button.
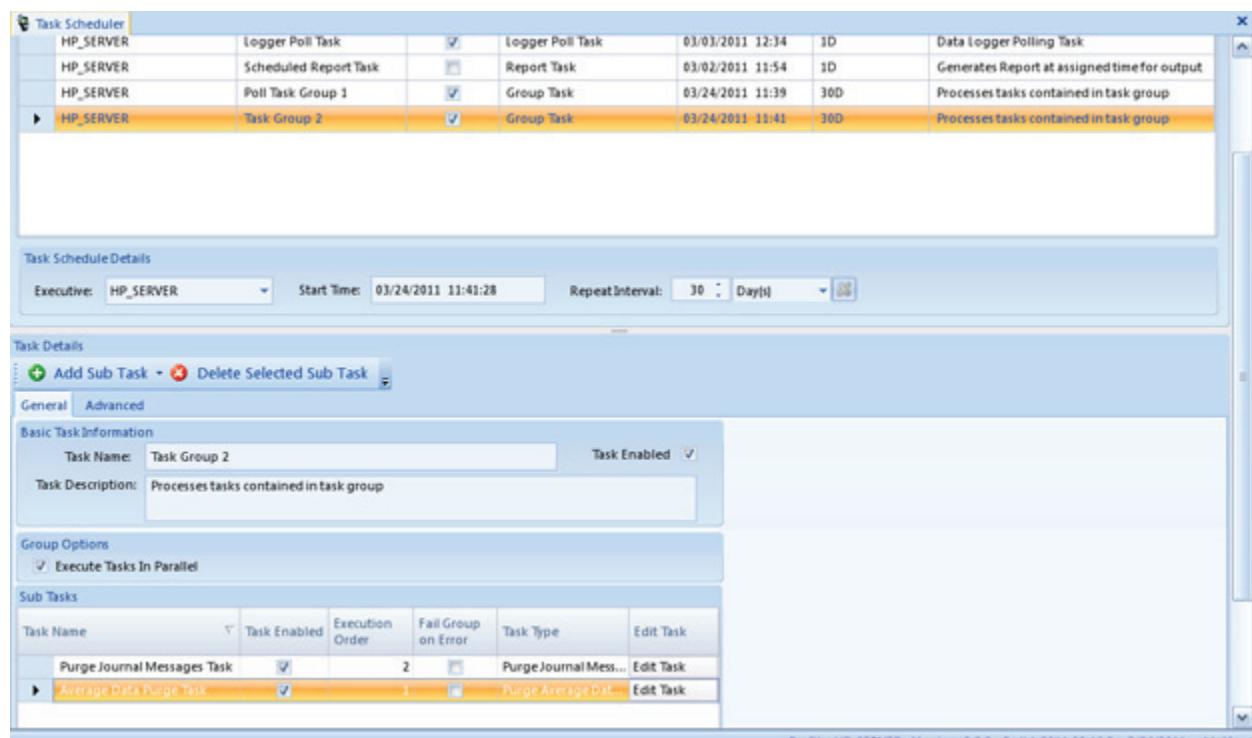
Task Group (Configuration Editors > Task Scheduler > Add > New Task Group)

Schedule Task Wizard

The Task Wizard can be used to manage dozens of polling tasks running in a single system. To set up task groups:

Open the **Task Wizard** (**Configuration Editors** > **Task Scheduler** > **Run Schedule Wizard** button on ribbon at top of screen) and click **Next**

Select **Site** and **Source** (including **Source Type Description**) and click **Next**.
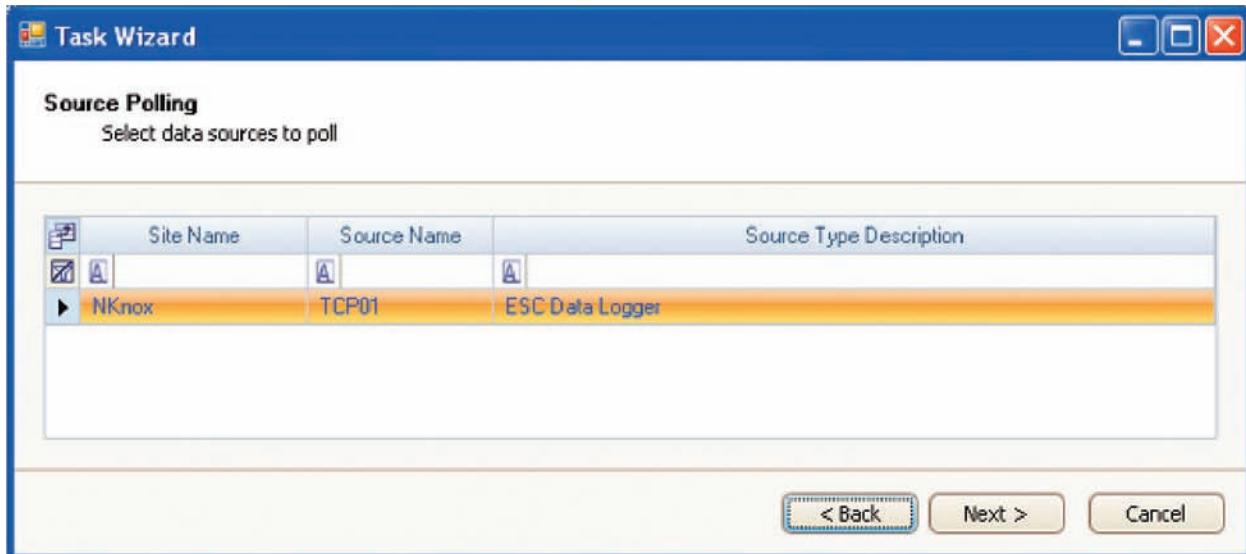
Selecting Site and Source Name in Task Scheduler Wizard (Configuration Editors > Task Scheduler > Run Schedule Wizard)

Select **Poll Types** (types of data to poll) from the following checklist
 Sync time,
 Averages,
 Calibrations,
 Input line changes,
 Alarm journal,
 Power failures,
 Chart memos,
 Central messages.

Click **Next**.
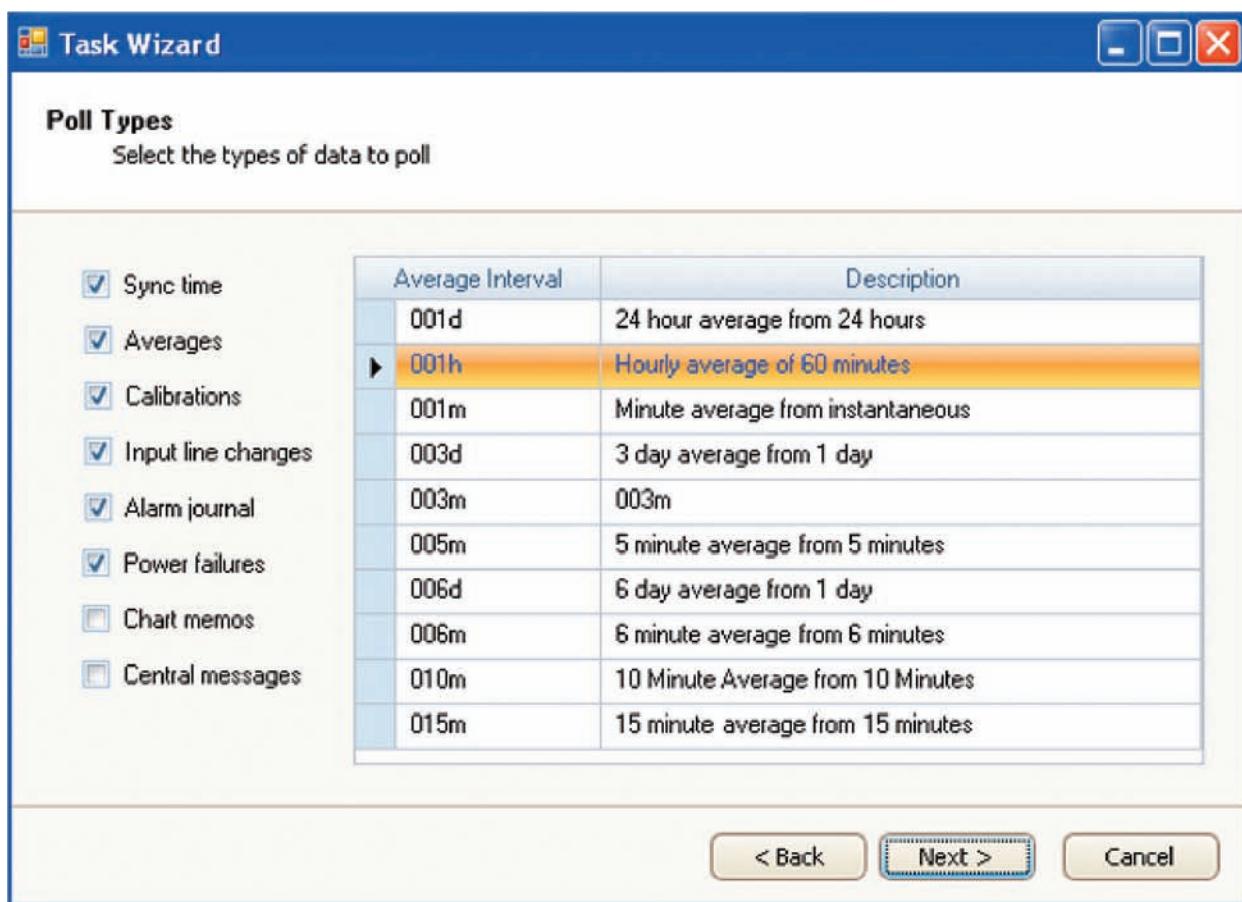
Poll Types in Task Scheduler Wizard (Configuration Editors > Task Scheduler >
Run Schedule Wizard)

Select the following configurations from drop-down lists:

      when the task will start,
      how often it will be repeated,
      and which server will execute the task.

The next screen will ask you to **Confirm Task Creation**. Click **Next** to save new task to database.

The last screen will say you have successfully completed the wizard. Click **Finish**.
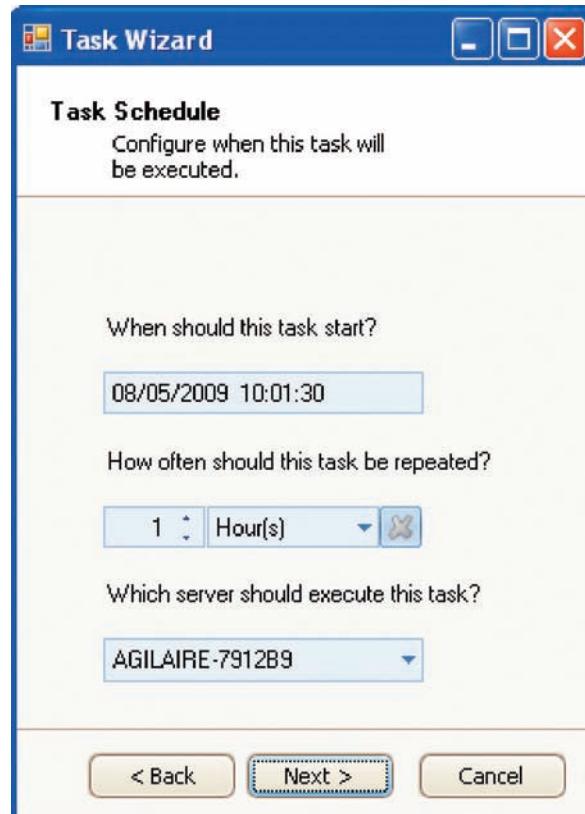
Task Schedule in Task Scheduler Wizard (Configuration Editors > Task Scheduler > Run Schedule Wizard)

Favorites Editor

AV-Trend simplifies regular tasks with a list of user-defined **Favorites**, which function like Favorites in Internet browsers. Favorites can be created for most menu items, including reports, editors, configurations, journals, calibration functions, security settings, logger functions, emails, and task scheduling. Favorites can be saved for different sites, parameters, average intervals, and date ranges. They can be saved for all users or for one user.

Favorites menu

Creating a Favorite

To create a favorite, open **Configuration Editors > Favorites Editors**. Click the red **Add Favorite button** on the left side of the ribbon.

▶ **Note:** Favorites can also be created inside Reports by selecting the **Favorites tab** and clicking the **Save as Favorites icon**.

Favorite Detail Tab

Under the **Favorite Detail** tab of the Favorites Editor: select a **Menu Item** from the drop-down list, enter a **Favorite Name**, enter a **Favorite Description** (optional), select a **Favorite Scope** from the drop-down list (**User** or **All Users**) and select from the following options:

Add a Favorite screen

- ◆ **Launch on Application Startup** to run the Favorite upon logging in to AV-Trend
- ◆ **Run Query on Launch** to execute data retrieval when the Favorite is selected.

Favorite Query Tab

Next, open the **Favorite Query** tab if it is available.

▶ **Note:** The Favorite Query tab will only be in the Favorites Editor after a Menu Item is selected that requires a time range, interval, and parameter(s), such as the Average Data Report and the Average Data Editor.
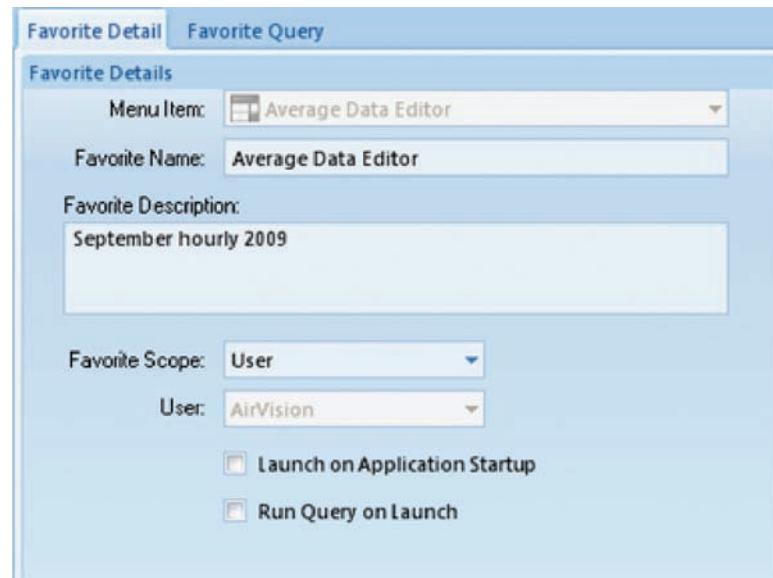
Select a **Date Range**, choose an **Average Interval** and select a **Parameter**. To select more than one parameter, drag the arrow in the blue left column or hold down the **Ctrl** key while you select parameters.

To save a favorite when you're in any data editor or report, complete a query, and select **Favorites** from the top menu. The ribbon bar will change to show the favorites menu.

Select **Save as Favorite** to bring up the **Add a Favorite** screen.

You can also configure the **Favorite** by selecting the **Favorite Query** tab after you select **Save as Favorite**. From this screen you can adjust the site/parameter list, date range, or average interval. These values can also be adjusted later in the **Favorites Editor** in the **Configuration menu**.

To return to the ribbon controlling the current application, select the top menu function (above the ribbon), for example, Average Data Editor.

To use an existing Favorite, select **Favorites** from the top menu (above the ribbon bar), select **User Favorite** or **Global Favorites**, and the saved **Favorite**.

A copy button on the ribbon allows you to copy an existing favorite for slight modification, if needed.
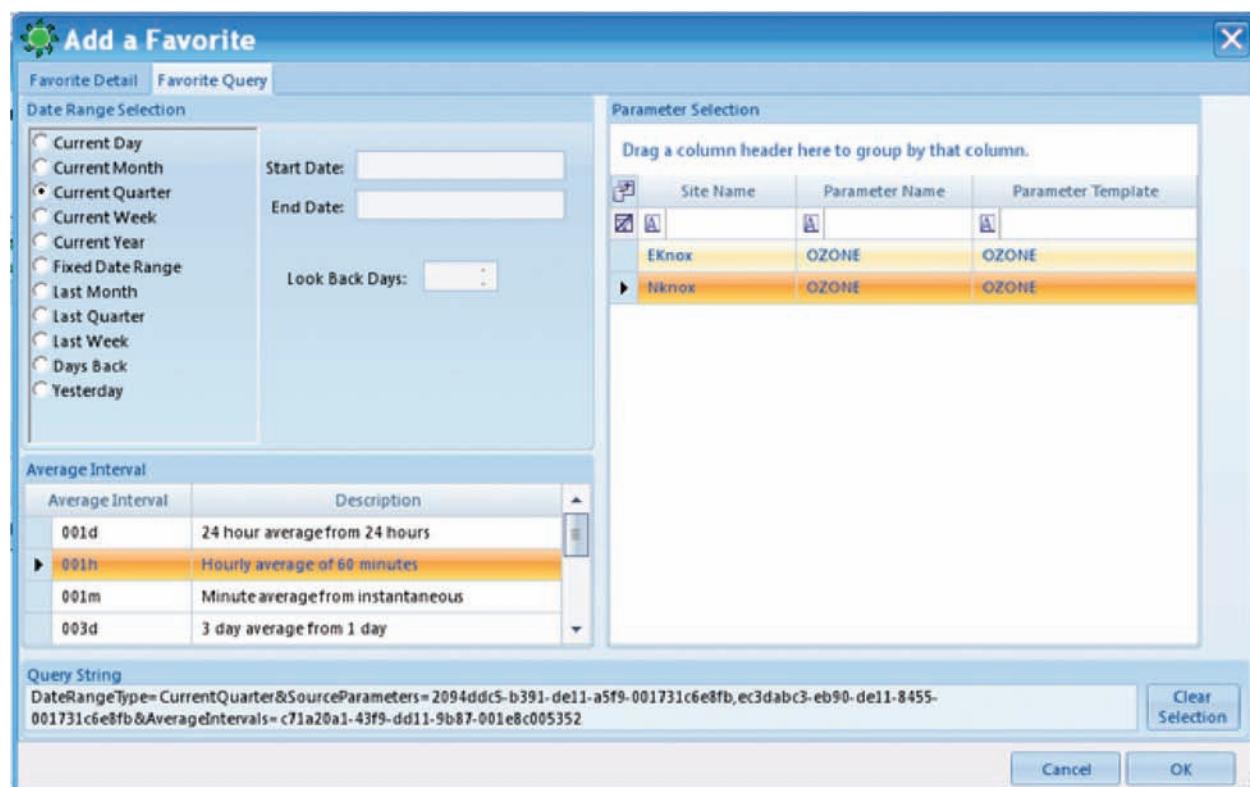
Favorite Query tab from Add a Favorite

GSI Driver Editor

The purpose of the GSI Driver Editor (**Editors>GSI Driver Editor**)is to provide a way to add, delete, or modify GSI driver entries in an editor similar to the Parameter Template editor for GSI entries and GSI instruments.

The GSI Driver Editor consists of an alphabetized pick-list of existing GSI entries for modification. Two editors are provided, one for instruments and one for entries, or two sections/ tabs of the forms.

Fields in the GSI Driver Entry tab include:

> GSI Entry

>> Associated GSI Instrument and GSI Entry (pick-list of configured instruments)

>> Send Name (string)

>> Parse Name (string, up to 8 char)

>> AutoSend String (string up to 8 char)

>> Autosend Repeat Interval (1..60 seconds)

>> Parse Sync String

>> Modbus Register

>> Fixed or Delimited Parsing

>>> Fixed:

>>>> Number of Chars to Data (int, up to 3 digits)

>>>> Data Field Width (int, up to 2 digits)

>>>> Number of Chars in string (int, up to 3 digits)

>>> Delimited:

>>>> Number of Delimiter Chars (string)

>>>> Number of Delimiters of Delimiters to Data (int, up to 3 digits)

>>>> Number of Delimiters In String (int, up to 3 digits)

>>>> Data Field Type (pick-list- Hex, Binary, Float)

> In the GSI Driver Instrument tab:

>> GSI Instrument Name

>> Default TCP Port (integer, up to 6 digits)

>> Default Modbus Code (integer, 0-255)

>> Default Modbus Command Type.(3 or 4)

Consult the Model 8816/8832 Data Logger Manual for details on the use of these fields.

Configuring Security

User security in AV-Trend is set up by administrative personnel and is similar to Microsoft Windows:

- ◆ Each system user has an identity, including a username and password
- ◆ A User may be a member of one or more User Groups
- ◆ Access and rights are assigned to User Groups

User Groups in AV-Trend are usually assigned by job responsibility (e.g., Data QA, Site Technicians, System Administrators). A group can optionally have its access limited to only certain monitoring sites. Users can be members of more than one **Group**, and each site can have a different access group.

User Editor

Administrators can add or delete users: open **Configuration Editors** > **Security** > **User Editor** and click **Add User** (or **Delete User**) button. Enter an **Email** address (optional). Click **Save**.
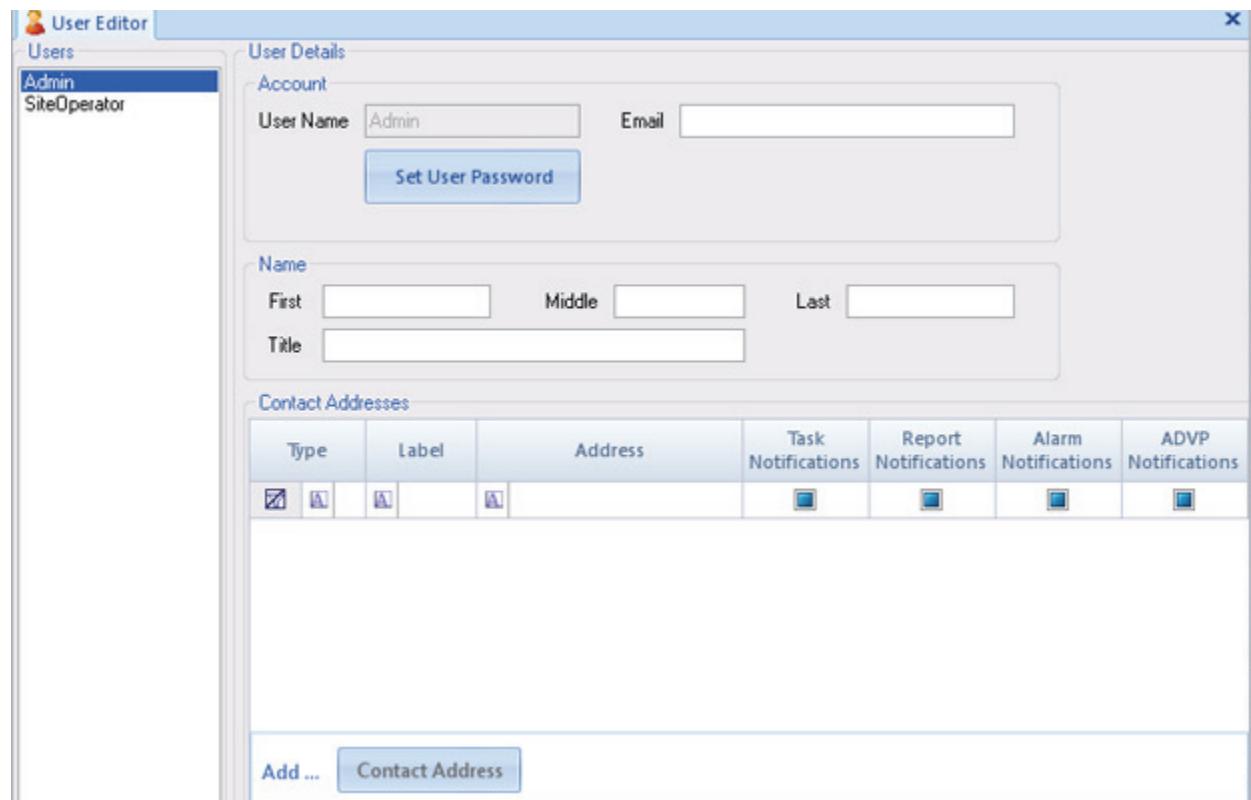
User Editor from Configuration Editors > Security > User Editor

My User Settings

Non-administrative personnel can change their own Password, Email, and Name, but not their User Name in the **My User Info** screen in **Configuration Editors** > **Security**. If a User Name needs to be changed (for example, if a name is misspelled), an Administrator would have to delete the original User Name and add a new one.

My User iNFO screen in Configuration Editors > Security

Group Permissions

Finally, define the permissions for each **User Group** using the **Configuration Editors** >
Security > **Group Permissions Editor**. Select a Group in the drop-down list. The list of
configured users is displayed (and users can be added here as well). The right panel shows
the various rights available in the system, and the status for the current group:

◆ Grayed = access disabled

◆ Black, underlined = access enabled

◆ Black, italic = access enabled by inheriting from another granted access.

In this example, access has been granted to certain Security permissions (Groups, Users, and
User Groups, but not Edit Tasks). Access is granted to all configuration items at the topmost
level, and all sub-tasks are permitted by inheritance. For example, to turn off Edit ADVP Rules,
first remove the overall Edit Configurations permission and then add the individual permissions.
Expand and Collapse the tree diagram using the buttons on the ribbon. To define a group as
having site-specific access, uncheck the **Apply to All Sites** in the lower left panel, and then
add sites using the list form below.
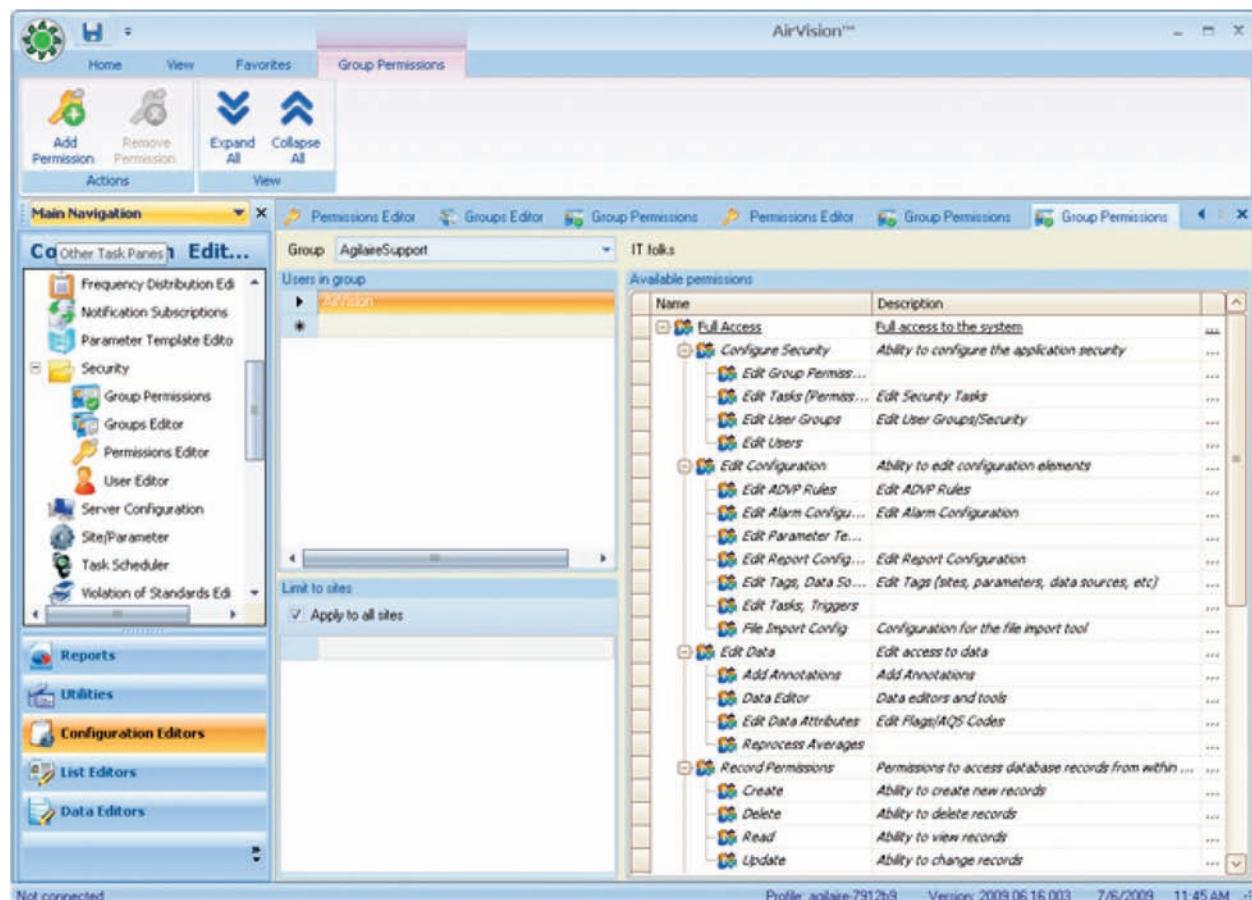
Group Permissions from Configuration Editors > Security > Group Permissions Editor

Chapter 3

Reports

After data has been polled, either by a scheduled task (**Configuration Editor>Task Scheduler**) or manually (**Utilities>Manual Poll**) AV-Trend can run the following reports after the Criteria Pane has been configured:

- ◆ Annotations Report
- ◆ Calibration Results
- ◆ Calibration Trend Graph

Configuration

- ◆ Calibration Configuration Report
- ◆ Channel Configuration Report
- ◆ Parameter Configuration Report
- ◆ Scheduled Tasks Report
- ◆ Site Configuration Report

Internal Reports

- ◆ Journal Message Log
- ◆ Software Version Report
- ◆ LogBook Report

Logger Reports

- ◆ Alarm Journal
- ◆ Input Line Status Report
- ◆ Power Failure Report
- ◆ Monthly Report

Criteria Pane

All reports use a Criteria Pane to select a time range and list of pollutants for the report.
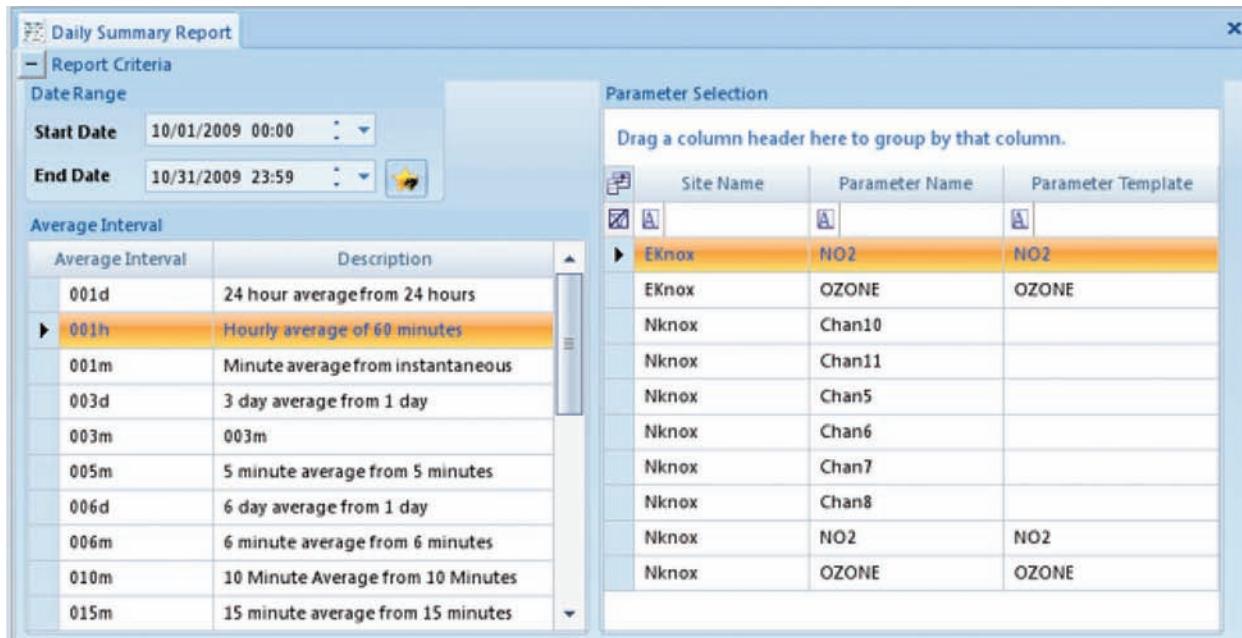
Report Criteria pane in Reports > Daily Summary Report

You can select the Date Range any of the following ways:

◆ Manually type in a month, day, year, and time.

◆ Click in a date field (the month, date, year, hour, minute) and click the small up or down arrow keys to raise or lower that field (month, day, year, hour, minute). (It isn't necessary to highlight the field, just put the cursor in it.)

◆ Use the bigger down arrow control to bring up a **Calendar.** You can click the arrows to change the month, or click the name of the month or year to bring up a list.

◆ Use the **Star** button to select from a pre-defined date range:

> Current Day
> Yesterday
> Current Week
> Last Week
> Current Month
> Last Month
> Current Quarter
> Last Quarter
> Current Year
> Number of days back from current day

In addition, the time criteria (e.g., the star icon button) allows you to choose "shift forward one day" or "shift backward one day." If you select one of these and hit apply, it acts similar to the "Data Forward" or "Data Backward" buttons, except always shifting by 24 hours, rather than the size of the data window. This is useful for reviewing calibration minute data for several days, where the calibration falls on the same time each day.

Scroll to select an **Average Interval** (most reports only support one average interval at a time).

Click to select a site and parameter; use standard Windows Shift-Click and Control-Click conventions to select multiple parameters.

Filters

Filter fields are available in the top row of each column. Click in the row to use the filter to list a single site, parameter, or parameter template.

Click the down-arrow to the right of each filter field to select a particular entry in the column. Choices in the drop-down list will be Custom, Blanks, Non-blanks, plus each entry in the column (site name, parameter names, or parameter templates)

Filter fields in Reports criteria pane

To write your own criteria, select **Custom** and configure the screen that pops up.
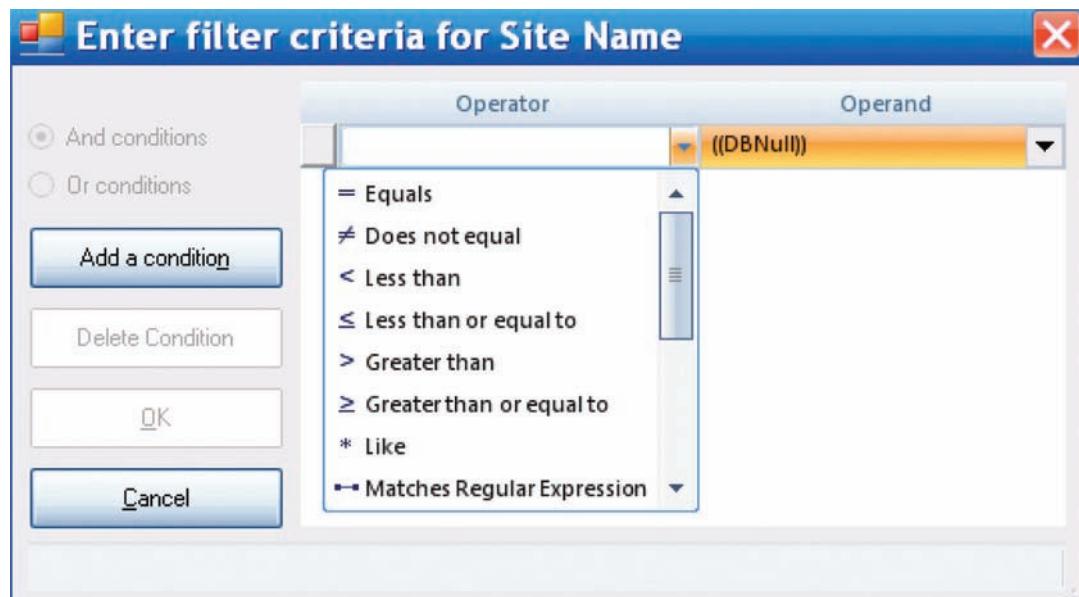
Custom filter criteria screen

Click the box with the letter **A** in the left side of each filter field to change the filter field from the default of **Starts With** to one of the following:

Equals
Does not equal
Less than
Less than or equal to
Greater than or equal to
Like
Matches Regular Expression
Starts with
Contains
Ends with
Does not start with
Does not contain
Does not end with
Does not match
Not like

For example, if you imported E-DAS data and used the option to put the channel number in front of the channel name, you might end up with some ozone channels that were "01_OZONE" while others were "03_OZONE" and "04_OZONE". Using the boxed "A" filter, you could search for all parameters names that contain ""Ozone" and more easily select them from a large list of parameters. Using a filter makes it easy to see a Parameter Template for was not set for 3_AMB_TEO_AMB_TEMP.

Parameter Selection		
Drag a column header here to group by that column.		
Site Name	Parameter Name	Parameter Template
	AMB_1	
Blount_S	11_AMB_TEMP	AMBTEMP
Blount2	12_AMB_TEMP	AMBTEMP
Brainerd	03_AMB_TEMP	
Roane_Y	12_AMB_TEMP	AMBTEMP
Union	11_AMB_TEMP	AMBTEMP

Using a filter to determine which parameters don't have a template

Additional Fields for Specific Reports

For some reports, the Criteria Panel is expanded with additional fields. For the Maximum Hourly Averages report, additional information is needed on how the data in the report should be filtered and calculated:

◆ Rolling hours, and time-tagging type

◆ Report highest average only for any day

◆ Allow report of overlapping maximums (for multiple hour rolling averages)

◆ Number of maximum averages to report

Additional Report Criteria required for Maximum Hourly Values report

Other reports with additional criteria include:

◆ Wind / Pollution Rose requires you to designate which Wind Rose report profile to use.

◆ AQS/XML Report requires you to choose which kinds of records to be assembled.

◆ Concentration Distribution, Frequency Distribution, Monthly Reports all allow you to designate an N-hour rolling average as an option.

Annotations Report

The Annotations report may be run on any list of parameters, for any time range. It provides a summary of all annotations it finds.

To see a report of annotations made in the **Average Data Editor**, open the **Reports** menu and select **Annotations Repor**t. Make the usual query selections of **Start/End Date**, **Average Interval**, and **Parameter(s)**. Click the **Generate Report** icon on the ribbon.

```
Current Date : 9/28/2010
Current Time : 9:10 PM
                                    Annotation Report

                        01-Mar-2006 00:00 to 06-Mar-2006 00:00


Site:   Roane_Y
Parameter: 02_SO2
```

Category	User Name	Annotation Date	Date	Annotation
Instrument Failure	Admin	28-Sep-10 21:10	01-Mar-06 20:00	Lightning strike
Maintenance	New User	28-Sep-10 21:09	01-Mar-06 05:00	Replaced pump seal
Maintenance	New User	28-Sep-10 21:09	01-Mar-06 06:00	Replaced pump seal
QA Note	Fred5	28-Sep-10 21:09	01-Mar-06 09:00	Quarterly Audit
QA Note	Fred5	28-Sep-10 21:09	01-Mar-06 10:00	Quarterly Audit
QA Note	Fred5	28-Sep-10 21:09	01-Mar-06 11:00	Quarterly Audit

---

Annotations Report

Calibration Results

Calibration Results show the calibration event and results for any zero/span, precision check, or other calibration program.

```
Current Date : 3/9/2009
Current Time : 3:47 PM                    Calibration Report


   Site:        SITEONE

   Source:      Logger01

   Date:        02-Jul-2008

Parameter    Sequence    Phase      Start Time     End Time     Value    Expected    % Error
                                                                         Value

test1        TESTCAL     PHASE1     00:00:00       00:01:00     1.123    1           12.35
```

Calibration Report

Calibration Trend Graph

Calibration Trend Graphs provide a long-term view of calibration zero/span results over a user-defined period of time (month, quarter, etc). Select a Start and End Date and a Parameter. Click the Generate Report icon on the ribbon.

If you select **Raw Data Graph** from the ribbon at the top of the screen, you can view calibration data in a text table.

Drag a column header here to group by that column

Site	Parameter	Source	Calibration	Phase Number	Phase Name	Start Date	EndDate	Expected Value	Value	Difference
SITEONE	OZONE	01	Autocal	1	Zero	10/11/2009 3:15 AM	10/11/2009 3:20 AM	0	-0.06620079	0.06620079
SITEONE	OZONE	01	Autocal	2	Span1	10/11/2009 3:15 AM	10/11/2009 3:25 AM	10	-0.06620765	10.06620765
SITEONE	OZONE	01	Autocal	3	Span2	10/11/2009 3:15 AM	10/11/2009 3:30 AM	20	-0.06617844	20.06617844
SITEONE	OZONE	01	Autocal	1	Zero	10/12/2009 3:15 AM	10/12/2009 3:20 AM	0	3.2763E-05	-3.2763E-05
SITEONE	OZONE	01	Autocal	2	Span1	10/12/2009 3:15 AM	10/12/2009 3:25 AM	10	1.8676E-05	9.999981324
SITEONE	OZONE	01	Autocal	3	Span2	10/12/2009 3:15 AM	10/12/2009 3:30 AM	20	1.3046E-05	19.999986954
SITEONE	OZONE	01	Autocal	1	Zero	10/13/2009 3:15 AM	10/13/2009 3:20 AM	0	3.8957E-05	-3.8957E-05
SITEONE	OZONE	01	Autocal	2	Span1	10/13/2009 3:15 AM	10/13/2009 3:25 AM	10	4.1682E-05	9.999958318
SITEONE	OZONE	01	Autocal	3	Span2	10/13/2009 3:15 AM	10/13/2009 3:30 AM	20	2.7749E-05	19.999972251

Raw Data Calibration Display

If you select **Historical Graph** from the Ribbon, you can view data in a graph. Each color represents a different phase, as shown in the legend. You can change the color scheme by selecting a **Graph Theme** from the drop down list at the bottom of the screen.

Historical Calibration Trend Graph

If you select **Response Graph** from the Ribbon at the top of the screen, you can review fine-resolution data during each calibration cycle to see instrument response. Each cal can be cycled through using the **Forward**/**Back** button. You can change the color scheme by selecting a **Graph Theme** from the drop down list at the bottom of the screen.
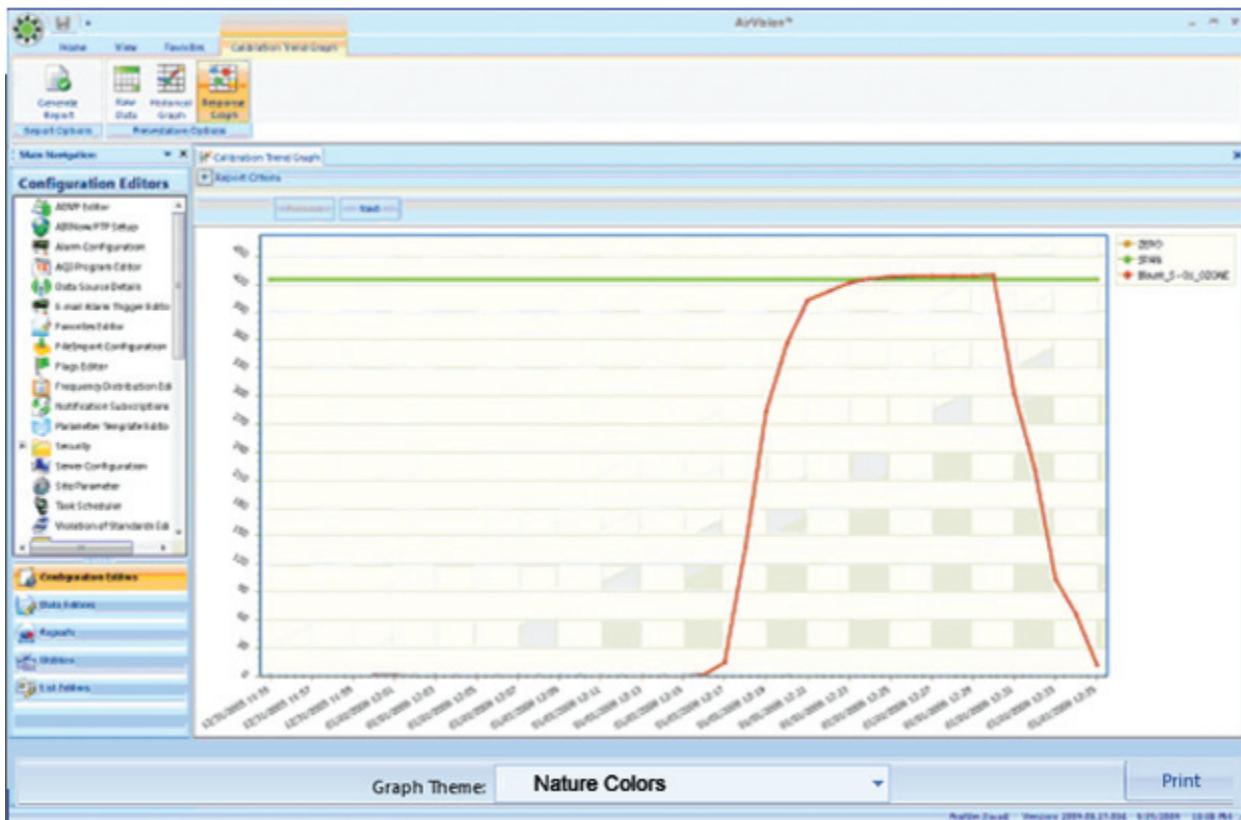
Calibration Trend Response Graph

Configuration Reports

Configuration reports consist of the following:

- ◆ Calibration Configuration Report
- ◆ Channel Configuration Report
- ◆ Parameter Configuration Report
- ◆ Scheduled Tasks Reports
- ◆ Calibration Report
- ◆ Site Configuration Report

Calibration Configuration Report

To run a Calibration **Configuration Report** (**Reports > Configuration folder > Calibration Configuration Report**), select a site or sites and click the **Generate Report icon** on the Ribbon.

Calibration Configuration Report
Agilaire

Calibration Name	Start Time	Repeat Interval	Recovery Time	Phase Name	Phase Number	Duration	Response Time	Status Pattern	Affected Channel
Auto 1	03/10/11 00:00	001D	005M	Zero	1	005M	001M	1	NO2

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Calibration Configuration Report (Reports > Configuration folder > Calibration Configuration Report)

Channel Configuration Report

To run a Channel Configuration Report (**Reports > Configuration folder > Channel Configuration Report**), select a **Site** or Sites and a **Parameter Name** or Parameter Names. Click the **Generate Report icon** on the Ribbon.

Channel Configuration Report (Reports > Configuration folder > Channel Configuration Report)

Parameter Configuration Report

To run a **Parameter Configuration Report**, (**Reports > Configuration folder > Parameter Configuration Report**), select a **Site** or Sites and a **Parameter Name** or Parameters Names. Click the **Generate Report icon** on the Ribbon.

<div style="text-align:center">

Parameter Configuration Report

Agilaire

</div>

Name	Description	Template	Reported Digits	Precision	Unit	Graph Minimum	Graph Maximum	Instrument Detection Limit	Totalize In Reports	Minimum In Reports	Report in AirNow	Enabled	POC	AQS Codes Method	AQS Codes Unit	AQS Codes Parameter
WDR	Wind Direction, High Level	WDR_HIGH	4	1	DEG	0	360		False	False	True	True			007	61102
WSP	Wind Speed, High Level	WSP_HIGH	4	1	KPH	0	100		False	False	True	True				61101
NO2	Nitric Oxide	NO2	4	3	PPM	0	500		False	False	True	True	1		007	42602
NO	Nitrous Oxide	NO	4	3	PPM	0	500		False	False	True	True	1		007	42601
NOX	Oxides of Nitrogen	NOX	4	3	PPM	0	500		False	False	True	True	1		007	42603

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Parameter Configuration Report, (Reports > Configuration folder > Parameter Configuration Report)

Scheduled Tasks Report

To run a **Scheduled Tasks Report**, open **Reports > Configuration folder > Scheduled Tasks Report** and the report will be displayed automatically. No query is necessary.

Scheduled Task Report

Task Name	Description	Enabled	Start Time	Repeat Interval
Scheduled Report Task	Generates Report at assigned time for output	True	3/2/2011 11:54:02 AM	1D
Logger Poll Task	Data Logger Polling Task	True	3/3/2011 12:34:32 PM	1D

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Scheduled Task Report (Reports > Configuration folder > Scheduled Tasks Report)

Site Configuration Report

To run a **Site Configuration Report**, (**Reports > Configuration folder > Site Configuration Report**), select a **Site** or Sites and click the **Generate Report icon** on the Ribbon.

Site Configuration Report

Agilaire:

Description:	main site		Latitude:	35.9605
Abbreviation:	01		Longitude:	-83.9208
Address:	2904-B		Time Zone:	EST
City:	Knoxville		Agency Code:	0581
County:	Knox		State Code:	47
Zip Code:	37918		CountyCode:	093
			Site Code:	

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Site Configuration Report, (Reports > Configuration folder > Site Configuration Report)

Daily Parameter Report

The **Daily Parameter Report** shows a single day summary for the entire monitoring network, grouping parameters together by the Parameter Template, but showing all sites sharing that parameter template.

Parameters that do not have a parameter template designated are not reported.

To generate a **Daily Parameter Report** (**Reports > Daily Parameter Report**), select **Start** and **End Dates**, an **Average Interval**, **Site Name o**r Names, and **Parameter Name** or Names. Click the **Generate Report icon** on the Ribbon.

Daily Parameter Report

3/1/2006

Parameter	StaName	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max	RDS
AMBTEMP	11_Roane	-9.1	-9.7	-10.3	-11.3	-12.7	-11.9	-11.9	-11.9	-10.9	-9.9	-8.6	-7.4	-5.6	-4	-3	-2	-1.5	-2.1	-3.5	-4.3	-4.8	-5.3	-5.2	-5.5	-7.2	-1.5	24
	12_Blaine	-8.4	-8.7	-9.6	-10.4	-10.4	-10.7	-11.5	-10.3	-8.9	-7.9	-6.8	-6.8	-4.6	-4.5	-4.2	-4	-4.2	-5.3	-6	-6.2	-6.2	-6.5	-7.1	-7.5	-7.3	-4	24
	Blount	-11.1	-10.4	-11	-11.8	-12.9	-13.9	-14.6	-14.1	-13	-12.2	-10.7	-8.7	-6.7	-6.2	-5.5	-4.5	-4.4	-4.4	-3.9	-3.5	-3	-3	-3.4	-3.8	-8.2	-3	24
CO	11_Roane		.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.4	.4	.4	.4	.5	.5	.5	.4	.5	.5	.5	.4	.4	.5	.9	23
NO	11_Roane		1.3	.6	3	6.4	1.5	2.2	7.1	5.6	4.6	11.8	5	8	4.4	6.4	11.3	5.8	9.1	5.9	7.9	8.7	10.5	11.6	8.3	6.6	16.5	23
NO2	11_Roane		5.3	7.3	19.2	21	4.2	4.9	8.7	5.1	4.2	7.8	4.4	4.2	4.3	5.5	9.9	8	13.3	8.9	14.9	21.5	20.5	13.3	21.2	10.5	20.5	23
NOX	11_Roane		8.2	9.1	23.3	27.5	6.7	7.9	16.8	11.5	9.7	17.8	10.2	12.9	9.6	13.9	23.1	14.7	23.3	15.8	23.6	31.2	40.8	36	30.6	17.9	40.8	23
OZONE_PPB	12_Blaine		35.9	37.3	41.4	41.4	40.5	38.6	39.1	40.6	40.5	40.8	40.4	40.8	40.5	41.1	41.9	42	42.1	41.4	42	42	41.2	39.4	39.8	40.3	42.1	23
PM25LC	11_Roane	5.5	5.3	4.3	7.4	11.6	5.5	1.4	5.4	4	6.2	4.8	4.1	2.8	3.2	3.8	3.4	5.2	6	6	5.5	4.3	6.9	7.6	8.6	5.4	11.6	24
	12_Blaine	7	10.2	5.8	2.8	2.5	2.9	5	4.3	8.7	7.2	3	5.3	4.7	3.4	2	3.3	3.3	3.3	5.4	4.5	3.4	3.3	5.2	7.1	4.6	10.2	24
RAINFALL	Blount	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
RELHUM	11_Roane	56.8	60.2	67.5	71.4	75.1	69.7	64.8	63.9	57.4	48.6	46.3	42.3	36.5	30.8	29.3	27.7	25.5	26	30.8	43.8	44	44.9	45	49.1	49.6	75.1	24
	12_Blaine	80.6	72.5	68.2	65.1	52.8	58.1	60.6	57.5	49.7	44.3	38.5	34.9	33.9	36.2	35.8	37.6	41	45.9	49.8	51.8	62.7	60.7	61.1	65.0	51.7	80.6	24
	Blount	67.9	56	55.3	65.8	58	54.4	62.2	61.7	51.2	45.6	45.2	39.7	36.5	35.8	35.7	37	37	35.9	35.3	36	34.8	36.8	35	37	45.8	67.9	24
SO2	11_Roane		4.4	5.9	15.7	15.3	3.6	3.4	3.8	3.1	4.2	2.3	3.8	7.2	4.3	1.5	1.3	1.5	1.8	2.3	4.5	4.6	5.7	4.4	4.7	4.7	15.7	23
VWDR	11_Roane	280.8	277	214.8	158.1	220.8	303.4	301.1	293.6	249	270.1	218.1	209	279.6	203.1	227.3	209.2	214.4	217.8	195	100.7	168.5	168.2	170.5	102.5	228.2	303.4	24
	12_Blaine	256.4	262.7	250.9	232.5	236	227.4	258.6	282.5	286.4	285	272.2	271.2	246.1	234.5	231.8	235.4	232.5	240	230.5	229.2	216.2	216.8	211.2	207.6	244	286.4	24
	Blount	196.4	278.4	237.1	206.6	189.1	189	153.6	121.6	125.8	140.6	945	133.9	178.1	165.7	181.4	164.7	151.5	144.3	148.4	147.9	195.9	161.7	131.4	144.2	165.9	278.4	24
VWSP	11_Roane	1.8	1.9	1.4	1	1.6	2.5	2.3	2.1	2.6	2	1.5	2.4	2.2	2.3	2.4	2.3	2.4	1.8	2.7	2.2	1.5	1.5	1.9	1.4	2	2.7	24
	12_Blaine	1.9	2.1	1.9	2.2	2.1	2.6	1.4	1.7	2.6	3	3.2	3.1	3.3	4.1	3.7	4.1	3.5	3	2.3	2.8	2.4	1.8	1.3	1.2	2.6	4.1	24
	Blount	1.6	4.3	2.5	2.1	1.8	2.1	1.6	1.9	1.8	1.8	1.7	1.1	1.4	2	2.3	1.9	1.8	1.8	1.1	.7	.9	1	1.5	1.5	1.8	4.3	24

Daily Parameter Report (Reports > Daily Parameter Report)

Daily Summary Report

The **Daily Summary Report** is usually used for the daily summary of hourly data for all parameters at a site or sites, but it can also be used to report any time range or average interval. Statistics (Average, Maximum, Minimum, and Count) are at the bottom of each column.

To generate a **Daily Summary Report** (**Reports > Daily Summary Report**), select **Start** and **End Dates**, an **Average Interval**, **Site Name** or Names, and **Parameter Name** or Names. Click the **Generate Report icon** on the Ribbon.

Current Time: 3/9/2009 2:18:57 PM

Daily Summary Report

Site: SITEONE   9/1/2007   Interval 001h

Hour	AMBTEMI	OZONE	RAINFALL	RELHUM	RWDR	RWSP	SIGTHET,	SOLARRA	SWSP
00:00	13.5	78	0	99	126	4.4	9	0	4.4
01:00	13.6	78	0	99	122	4.5	10	0	4.5
02:00	13.5	83	0	98	136	4.5	8	0	4.5
03:00	13.8	88	0	100	143	3.9	8	0	3.9
04:00	13.8	87	0	100	125	3.6	10	0	3.6
05:00	13.5	86	0	100	110	3.2	10	0	3.2
06:00	13.4	83	0	100	110	3	9	36	3
07:00	14	79	0	100	103	2.7	13	193	2.7
08:00	14	78	0	98	101	2.9	12	259	2.9
09:00	14	73	0	98	102	2.2	16	157	2.2
10:00	14.9	68	0	94	110	2.5	18	345	2.5
11:00	15.5	64	0	91	121	2.2	22	357	2.2
Average	13.958	78.75		98.083	117.417	3.3	12.083	112.25	3.3
Max	15.5	88	0	100	143	4.5	22	357	4.5
Min	13.4	64	0	91	101	2.2	8	0	2.2
Count	12	12	12	12	12	12	12	12	12

Daily Summary Report

Internal Reports

The **Internal Reports folder** contains the **Journal Message Log** and the **Software Version Report**.

Journal Message Log

The **Journal Message Log** (**Reports** > **Internal Reports** > **Journal Message Log**) displays messages about selected **Logging Types**. Logging Types are displayed in a drop-down check list when you click the arrow in the **Logging Type** field. Type selections are: **Fatal**, **Exception**, **Error**, **Warning**, **Startup**, **Shutdown**, **Information**, **Communication**, **Verbose**, **Debug**, **Timed Even**t, or **Select all**.

▶ **Note:** To log detailed information about a specific (problematic) Logging Type or Types, select that **Logging Type** in addition to **Verbose** from the drop-down menu before you generate the Journal Message Report.

Journal Message Log (Reports > Internal Reports > Journal Message Log)

Software Version Report

The **Software Version Report** (**Reports>Internal Reports >Software Version Report**) displays Timestamps for **Database Schema** and **Software Builds**, **Version IDs**, and **Software Version**. The Software Version REport is primarily used for troubleshooting in the event of unusual software behavior.

Software Version Report

Database Schema Timestamp	7/23/2010 3:14:16 PM
Database Schema Version Id	19d9b0d3-79b3-4401-ad5c-eda98399a07e
Database Schema Version Number	4058
Client Database Schema Timestamp	5/3/2010 1:01:22 PM
Client Database Schema Version Id	a6397b90-8a18-4ea5-8b05-954bc3d6dc06
Client Database Schema Version Number	4004
Client Build Timestamp	6/26/2010 3:03:44 AM
Client Build Version	2010.06.26.1
Client Product Version	2.0.0 Alpha
Server Database Schema Timestamp	6/3/2010 1:01:22 PM
Server Database Schema Version Id	a6397b90-8a18-4ea5-8b05-954bc3d6dc06
Server Database Schema Version Number	4004
Server Build Timestamp	6/26/2010 3:02:00 AM
Server Build Version	2010.06.26.1
Server Product Version	2.0.0 Alpha

Software Version Report (Reports>Internal Reports)

LogBook Report

The **LogBook Report** generates reports of logbook entries that were made in the **LogBook Entries Editor**. To query a LogBook Report select LogBook Report from the **Reports** menu. Select **Start** and **End Dates** and a **Site Name** from the top section of the screen and click the **Generate Report icon** in the upper left section of the screen. The user may also choose one or all Logbook Categories as a filter for the report.

The logbook report will be displayed in the lower section of the screen
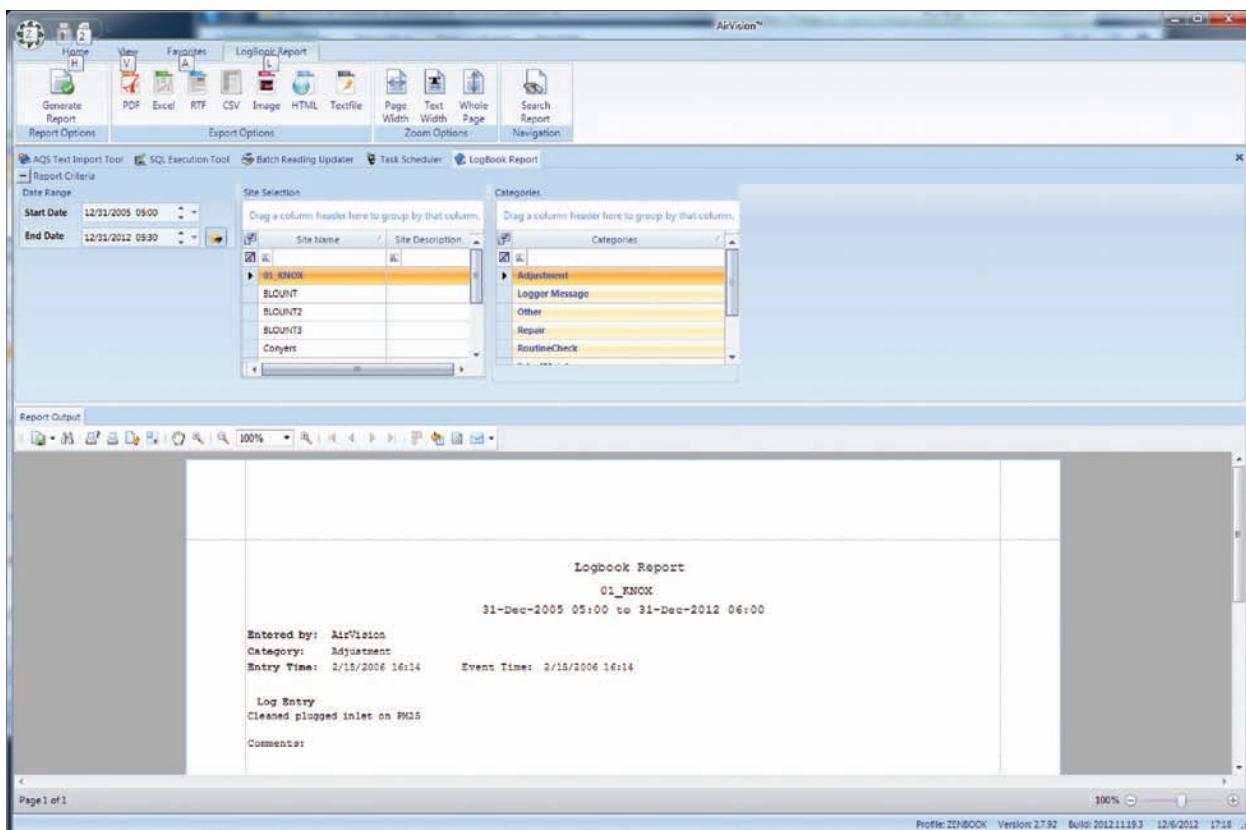
LogBook Report

Logger Reports

The **Logger Reports** folder in the **Reports** menu contains the following reports:

- ◆ **Alarm Journal**
- ◆ **Input Line Status Report**
- ◆ **Power Failure Report**

Alarm Journal

The **Alarm Journal** displays the Site Name, Channel Number, Channel Name, Alarm Program Name, Alarm Start/End Time, Reason Code, and Triggering Flag.

To run an **Alarm Journal**, select **Reports** > **Logger Reports** > **Alarm Journal**. In the **Report Criteria** screen, select a **Start/End Date** and a **Site/ Source Name**. Click the **Generate Report** icon. A Logger Alarm Journal Report will be displayed in the bottom section of the screen.

Logger Alarm Journal Report

Site Name SITEONE

| Logger Identifier 01 | | Logger Name | Logger 01 | | | | |

Channel Number	Channel Name	Alarm Program Name	Alarm Start Time	Alarm End Time	Reason Code	Flag Triggering
2	test2	TEMPOUT	2/12/2008 6:08:00 AM	2/12/2008 8:43:00 AM		h
2	test2	TEMPOUT	2/12/2008 8:27:00 AM	2/12/2008 8:36:00 AM		h
2	test2	TEMPOUT	2/12/2008 8:37:00 AM	2/12/2008 8:40:00 AM		h
2	test2	TEMPOUT	2/12/2008 8:42:00 AM	2/12/2008 8:45:00 AM		h
2	test2	TEMPOUT	2/12/2008 8:49:00 AM	2/13/2008 7:05:00 AM		h
2	test2	TEMPOUT	2/12/2008 2:37:00 PM	2/12/2008 4:12:00 PM		h
2	test2	TEMPOUT	2/12/2008 8:34:00 PM	2/12/2008 9:50:00 PM		h

Logger Alarm Journal Report

Input Line Status Report

The **Input Line Status Report** displays Site and Logger Name, Logger ID, Line Number Line Name, Line State, Time of Change, and Line Description.

To run an **Input Line Status Report**, select **Reports** > **Logger Reports** > **Input Line Status Report**. In the **Report Criteria** screen, select a **Start/End Date** and a **Site/ Source Name**. Click the **Generate Report** icon. An **Input Line Status Report** will be displayed in the bottom section of the screen. Each site/logger is shown in a separate page.

Input Line Report

Site Name   SITEONE

Logger Name   Logger01   Logger Identifier   01

Line Number	Line Name	Line State	Time Of Change	Line Description
4	OutPut Line4	☑	2/5/2009 1:38:45 PM	
4	OutPut Line4	☐	2/5/2009 1:38:46 PM	
37	OutPut Line37	☑	5/5/2009 12:00:02 AM	
37	OutPut Line37	☐	5/5/2009 12:05:01 AM	
37	OutPut Line37	☑	5/6/2009 12:00:02 AM	
2	DIG002	☑	5/6/2009 12:00:02 AM	
2	DIG002	☐	5/6/2009 12:05:01 AM	
37	OutPut Line37	☐	5/6/2009 12:05:01 AM	
37	OutPut Line37	☑	5/7/2009 12:00:02 AM	
2	DIG002	☑	5/7/2009 12:00:02 AM	
2	DIG002	☐	5/7/2009 12:05:01 AM	
37	OutPut Line37	☐	5/7/2009 12:05:01 AM	
37	OutPut Line37	☑	5/8/2009 12:00:02 AM	
2	DIG002	☑	5/8/2009 12:00:02 AM	
2	DIG002	☐	5/8/2009 12:05:01 AM	
37	OutPut Line37	☐	5/8/2009 12:05:01 AM	

Input Line Report

Power Failure Report

The **Power Failure Report** displays Site and Logger Name, Logger ID, Failure Time and Restored Time.

To run a **Power Failure Report**, select **Reports** > **Logger Reports** > **Power Failure Report**. In the **Report Criteria** screen, select a **Start/End Date** and a **Site/ Source Name**. Click the **Generate Report** icon. A **Power Failure Report** will be displayed in the bottom section of the screen. Each site/logger is shown in a separate page.

Logger Power Failure Report

Site Name	SITEONE	Site Description	SITE 01

Logger Name	Logger 01	Logger Identifier	01

Failure Time	Restored Time
11/25/2007 12:00:00 AM	11/25/2007 12:01:00 AM
11/25/2007 12:01:00 AM	11/25/2007 12:01:00 AM
7/2/2008 10:56:00 AM	7/2/2008 10:56:00 AM

Power Failure Report

Monthly Report

Monthly reports provide a matrix view of a single parameter, showing values for the entire month. Invalid or flagged data is shown with a color background or font change defining the data condition. Statistics are provided for each row (day) and column (hour).

To run a **Monthly Report:**:

1. Select **Reports > Monthly Report.**

2. Select a **Start** and **End** date

3. Select number of **Hours for Rolling Average**

4. Select a **Rolling Type** (**Backward or Forward**)

5. Select the **Parameters** that will be displayed in the report

6. If you want the **Flags Legend** to be shown in the report, click to select **Flags**. (You may have to scroll down to see the Flags option.

7. Click the **Generate Report** button on the Ribbon.

▶ **Note:** If **Totalize in Reports** was selected in **Configuration Editors > Parameter Settings**, Monthly Reports will show a total of data rather than an average.
If **Minimum in Reports** was this option was selected in **Configuration Editors > Parameter Settings**, Monthly Reports will show a minimum of data rather than an average or a total. Totalize in Reports and Minimum in Reports are most commonly used for rainfall.

Monthly Report Query

Monthly Report with Parameter Code

If **AQS Null Code**s have been set for invalidated data, they are displayed in the **Monthly Repor**t. If Site Codes, and/or Parameter codes have been selected in the Configuration Menu they will be included in the Header. Options are provided to show null codes or flags when an invalid hour is shown on the report. These options are also available in the Scheduled Task (options).

																									Summary		
Day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max	RDS
01	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	0.005	0.005	24
02	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	0.005	0.005	24
03	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	0.005	0.005	24
04	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	.005	1.675 D	3.534	3.547	0.369	3.547	24
05	3.561	3.574	3.587	3.597	3.609	3.618	3.628	3.636	3.606>	3.555	3.523	3.525	3.527	3.522	3.518	3.522	3.52	3.518	3.505	3.502	3.51	3.521	3.533	3.547	3.552	3.636	24
06	3.582	3.576	3.586	3.597	3.611	3.62	3.629	3.638	3.635	3.596	AI<	3.521	3.524	3.542	3.552	3.555>	3.555	3.551	3.544	3.533	3.536	3.546	3.556	3.571	3.571	3.638	23
07	3.583	3.598	3.61	3.62	3.632	3.641	3.653	3.665	3.657	3.657	3.566	3.56	3.557	3.542	3.53	3.525	3.52	3.523	3.523	3.513	3.511	3.509	3.512	3.522	3.572	3.665	24
08	3.53	3.541	3.55	3.56	3.57	3.58	3.599	AI<	3.594	3.54	3.5	3.493	3.493	3.493	3.491	3.491	3.495	3.496	3.489	3.478	3.474	3.481	3.487	3.497	3.519	3.599	23
09	3.507	3.519	AI<	3.542	3.549	3.558	3.563	3.574	3.578	3.557	3.518	3.492	3.488	3.496	3.496	3.496	3.499	3.495	3.492	3.488	3.479	3.481	3.48	3.483	3.514	3.578	23
10	3.492	3.498	3.507	3.516	3.524	3.53	3.538	3.545	3.547	3.527	3.492	3.49	3.497	3.517	3.519	3.522	3.522	3.519	3.515	3.514	3.503	3.501	3.51	3.516	3.515	3.547	24
11	3.527	3.535	3.543	3.554	3.566	3.572	3.582	3.591	3.594	3.582	3.541	3.54	3.533	3.534	3.535	3.531	3.533	3.533	3.528	3.527	3.527	3.522	3.531	3.534	3.544	3.594	24
12	3.539	3.546	3.552	3.561	3.567	3.576	3.582	3.589	3.591	3.577	3.554	3.539	3.538	3.543	3.538	3.531	3.532	3.524	3.521	3.523	3.516	3.517	3.521	3.521	3.546	3.591	24
13	3.527	3.525	3.524	3.527	3.533	3.538	3.538	3.542	3.539	3.529	3.529	3.531	3.526	3.527	3.528	2.881 D>	.003	.003	.003	.003	.003	.003	.003	.003	2.327	3.542	24
14	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	0.003	0.003	24
15	.003	.003	.003	.004	.004	.004	.004	.004	.004	.004	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	0.003	0.004	24
16	.003	.003	.003	.003	.004	.004	.004	.004	.004	.004	.004	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	0.003	0.004	24
17	.003	.003	.003	.003	.004	.004	.004	.004	.004	.004	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	.003	0.003	0.004	24
18	.003	.003	.003	.003	.003	.003	.003	.003>	.003	.003	.003														0.003	0.003	11
Max	3.583	3.598	3.61	3.62	3.632	3.641	3.653	3.665	3.657	3.657	3.566	3.56	3.557	3.543	3.552	3.555	3.555	3.551	3.544	3.533	3.536	3.546	3.556	3.57	3.665	3.665	3.665
Avg	1.77	1.774	1.676	1.783	1.788	1.792	1.797	1.695	1.798	1.795	1.662	1.866	1.865	1.867	1.867	1.828	1.659	1.658	1.656	1.653	1.652	1.751	1.864	1.868	1.766	1.766	1.766
Count	18	18	17	18	18	18	18	17	18	18	17	17	17	17	17	17	17	17	17	17	17	17	17	17	416	416	416

Current Date: 10/18/2010 12:51 PM — Site Name: Agilaire — Parameter: OZONE — Monthly Report October 2010 — Hours — Avg Interval: 1 hour — Units: PPM

Monthly Report

Flags

> Some Data Missing	+ Max Exceeded	- Min Exceeded	< Logger Invalid
? Suspect	a Audit	B Bad Status	C Calibration
c Ceiling Limit	D Channel Disabled	E Edited	e Site Malfunction
f Floor Limit	H High-High Alarm	h High Alarm	I Invalidated By Edit
J Rate of Change Alarm	L Low-Low Alarm	l Low Alarm	M Maintenance
m Marked Maint by edit	O Overrange	o Other	P Power Failure
p Precision Check	Q Quality Assured	R Rate of Change Exceeded	V Dig Info#1
W Dig Info#2	X Dig Info#3	Y Dig Info#4	Z Dig Info#5
z Zero Adjusted			

Flags Legend in Monthly Report

Favorites

AV-Trend simplifies regular tasks with a list of user-defined **Favorites**, which function like Favorites in Internet browsers, such as Internet Explorer. You can save a selection of sites, parameters, average intervals, and date ranges for the **Average Data Editor** or any **Data Report**.

Favorites can be saved as a global favorite for all users, or as a favorite for an individual user. To create a favorite, go into any data editor or report, complete a query, and select **Favorites** from the top menu. The ribbon bar will change to show the favorites menu.

Favorites menu

Select **Save as Favorite** to bring up the **Add a Favorite** screen.

Give the favorite a name, a description (optional), and select **User** or **All Users** (global) and select from the following options:

◆ **Launch on Application Startup** to run the Favorite upon logging in to AV-Trend

◆ **Run Query on Launch** to execute data retrieval when the Favorite is selected.

Add a Favorite screen

You can also configure the **Favorite** by selecting the **Favorite Query** tab after you select **Save as Favorite**. From this screen you can adjust the site/parameter list, date range, or average interval. These values can also be adjusted later in the **Favorites Editor** in the **Configuration menu**.

To return to the ribbon controlling the current application, select the top menu function (above the ribbon), for example, Average Data Editor.

To use an existing Favorite, select **Favorites** from the top menu (above the ribbon bar), select **User Favorite** or **Global Favorites**, and the saved **Favorite**.

Favorite Query tab from Add a Favorite

Chapter 4

Data Editors

Average Data Editor

The AV-Trend **Average Data Editor** (**Data Editors** > **Average Data Editor**) combines multiple functions into a single tool:

◆ Editing data point details

◆ Batch editing

◆ Comparison of current data with historical minimum, maximum, and mean.

◆ Analyze/Exported

In addition, you can toggle between the following six formats by clicking buttons in the ribbon at the top of the screen:

◆ Linear Table (the default display)

◆ Cross-Tab Table

◆ Matrix Table

◆ Time Series Graph (can be used for single or multiple parameters, but the historical comparison tools in this X-Y scatter plot only appear in single-parameter queries)

◆ Scatter Plot graph (requires queries of two or more parameters)

◆ Histogram (for single parameter queries)
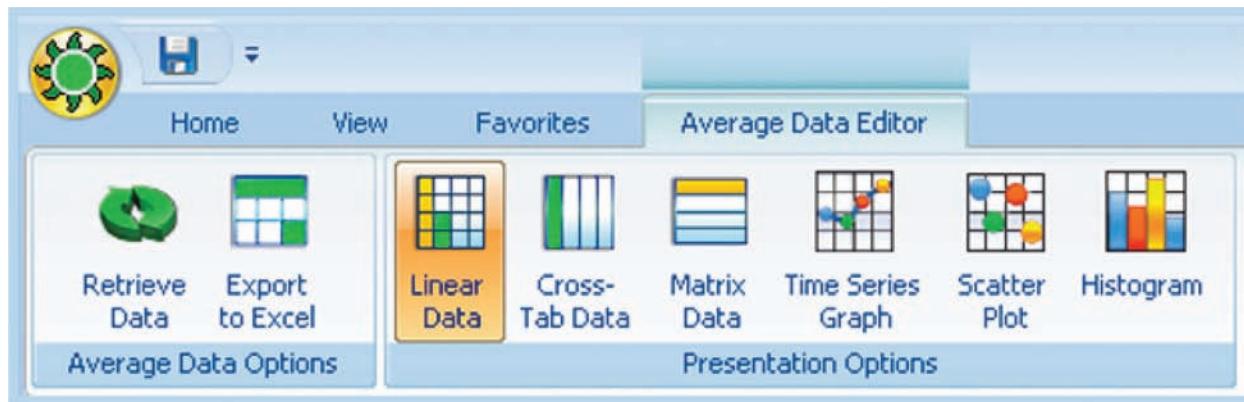
Ribbon bar to toggle between Data Editor displays

To edit data in the **Average Data Editor** (**Data Editors** > **Average Data Editor**), enter

- ◆ **Start** and **End Date** (type dates or use arrow keys to select)
- ◆ **Average Interval** (for example, 001h Hourly average of 60 minutes)
- ◆ **Parameter Selection** (for example, **Site Name** NKNOX, **Parameter Name** NO2, **Parameter Template** NO2)
- ◆ Click the **Retrieve Data** button in the ribbon at the top of the screen

The Average Data Editor will open the Linear Data Editor by default. Click buttons in the ribbon to change formats.

Linear Data Editor

The Linear Data Editor

- ◆ Site Name, Parameter Name, Parameter Template Name
- ◆ Average Interval
- ◆ Start and End Dates
- ◆ Value (Hover the mouse pointer over data values to see any annotations.)
- ◆ Raw Value (can't be edited)
- ◆ AQS Null Codes
- ◆ Data Logger Flags
- ◆ Qualifier Codes
- ◆ AV-Trend Data Grade (used by ADVP).

To edit data values, double-click in the Value cell or right-click to bring up a pop-up menu.

Average Data Editor from Data Editors menu

Cell Color Codes

All data is color-coded based on the flag-to-color mappings listed in the **Flags Edito**r. AV-Trend is loaded with some default mappings, but you can customize this for your system. The color mappings are global to all users for consistency.

In addition, AV-Trend uses two font changes to represent data in the data editor:

- ◆ **Bold** values represent data that does not match the raw database (edited values)
- ◆ *Italics* values represent data that has an annotation. Hover the mouse pointer over data values to see details of annotations.

Right-Click Options

Each of the three non-graphical data editors support select, shift-select, CTRL-select, click-drag selection capabilities, and a right-click menu options. Right-click a data point in the **Value** column to bring up the following menu:

- ◆ **Restore from Raw** copies value from the raw database to the final **Value** and resets flags

- ◆ **Set to Minimum Detectable Limit** sets data value to MDL configured in Parameter Editor

- ◆ **Set AQS Code** brings up a pick list to apply new AQS null codes
- ◆ **Set Qualifier Code** brings up a selection box for AQS qualifier (exception) codes
- ◆ **View All Flags** (for single data points only) shows all data logger and system flags and allows you to change or clear flags. Multiple flags can be displayed in each cell.

- ◆ **Set Annotations** brings up an annotation screen so you can add an annotation
- ◆ **Batch Edit** allows you to scale two or more selected data values as **mX+b** (Original Value times a Multiplier plus a Constant Value), for example, divide by 10 and clear the suspect flag. First, you must select **Enabled**.You have the option to combine scaling with one or more of the following: **Update Values**, **Set Annotations**, **Set AQS Code**, **Set Qualifier Code**, and **Set Flags**. If you select **Set Flags**, you will have the option to **Update Children Flags**.

- ◆ **Show Children** brings up another instance of the Data Editor with the selected parameters and time range for the **Child** parameter(s) of the selected parameter. This function requires that **Parent-Child Parameter** relationships are configured in **Configuration Editors** > **Parameter Settings**.

- ◆ **Drill Down Interval** allows you to drill down to minute averages from hourly averages.

- ◆ **Export to Excel** exports the selected data range to an Excel document, including color, font, and layout details. This right-click option is different from the Export to Excel button in the ribbon at the top of the screen because the button on the ribbon exports the entire data set in the data editor and the right-click option exports only selected data.

Click a column heading to sort data by a different heading, for example to group data according to flags. Default is to sort by date.

Click-hold-drag columns to change the order of columns or to drag a column heading to the **Drag a column header here to group by that column** area.

Cross-Tab Data Editor

The **Cross-Tab Data Editor** shows Parameters as columns and sequences rows by date/time in ascending order and provides the same right-click menu as the Linear Data Editor.
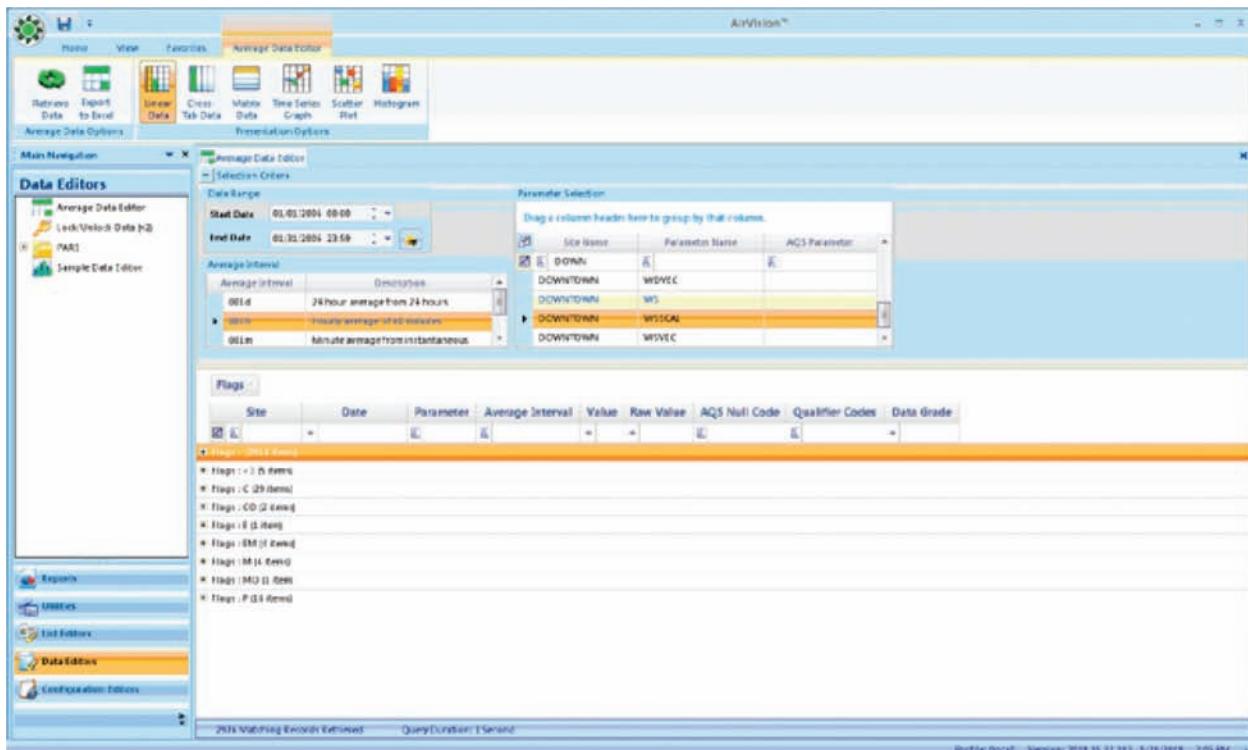
Cross-Tab Data Editor from Data Editors menu

▶ **Note:** You can sort data by any column by clicking on a column header You can find all flagged data easily, for example data grouped by data logger flag. Each group can then be expanded and individually sorted. When you change editor modes, the groupings are not kept.
Also, you can click-hold-and-drag columns to change the order, and click-drag columns to the **Drag a column header here to group** area to group data. If you do this accidentally or change your mind, you can drag it back.

Matrix Data Editor

The Matrix Data Editor presents data in a format similar to the monthly report. If you select multiple parameters, they are grouped with a plus (+) symbol for expansion.
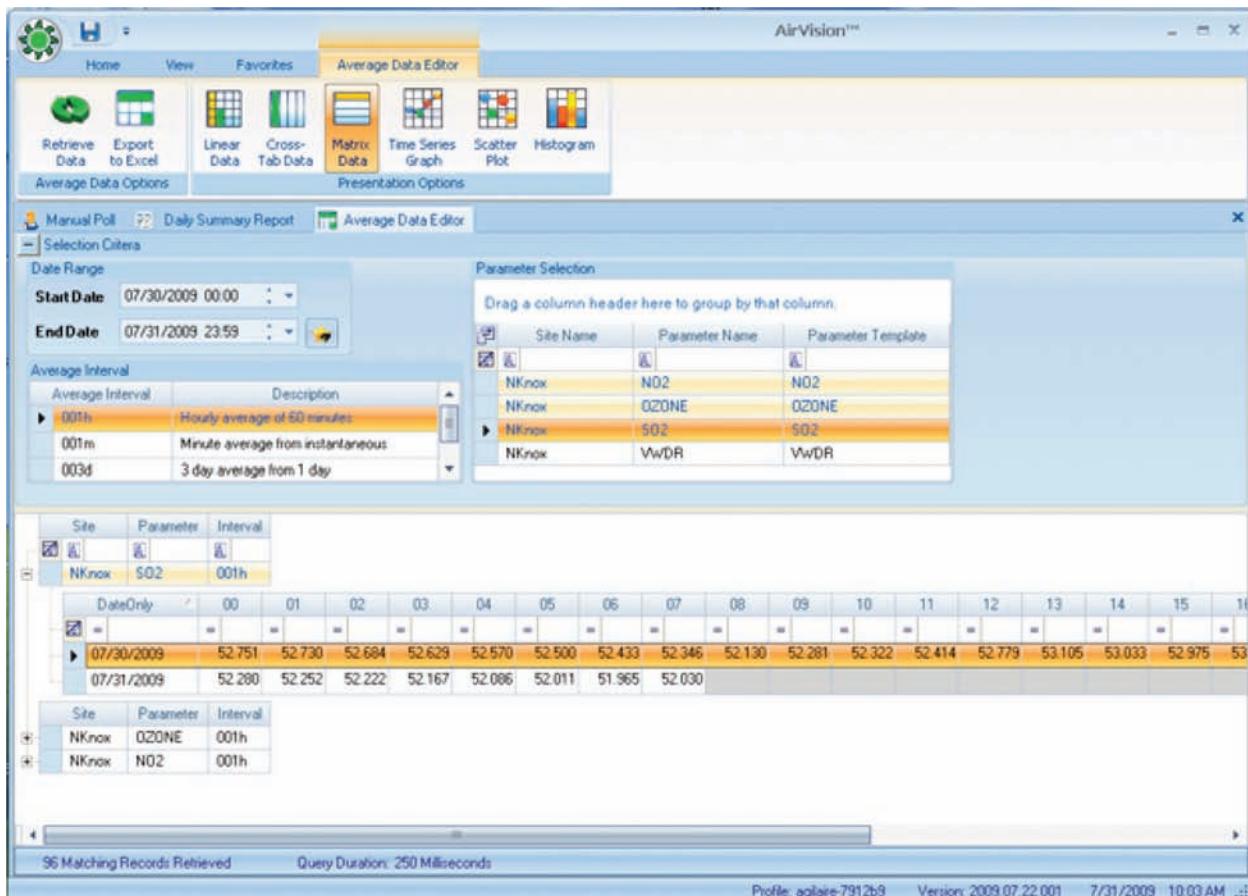
Matrix Data Editor from Data Editors menu

Time Series Graph

You can generate the Time Series Graph in two modes, for one or more parameters.
In multi-parameter mode, you can group different parameters together for any time period.
With the tools at the bottom or the screen, you can change the color scheme, remove or restore the legend, and print the graph.
The minus (-) sign in the upper left corner of the screen minimizes the selection criteria to make more room for the graph.
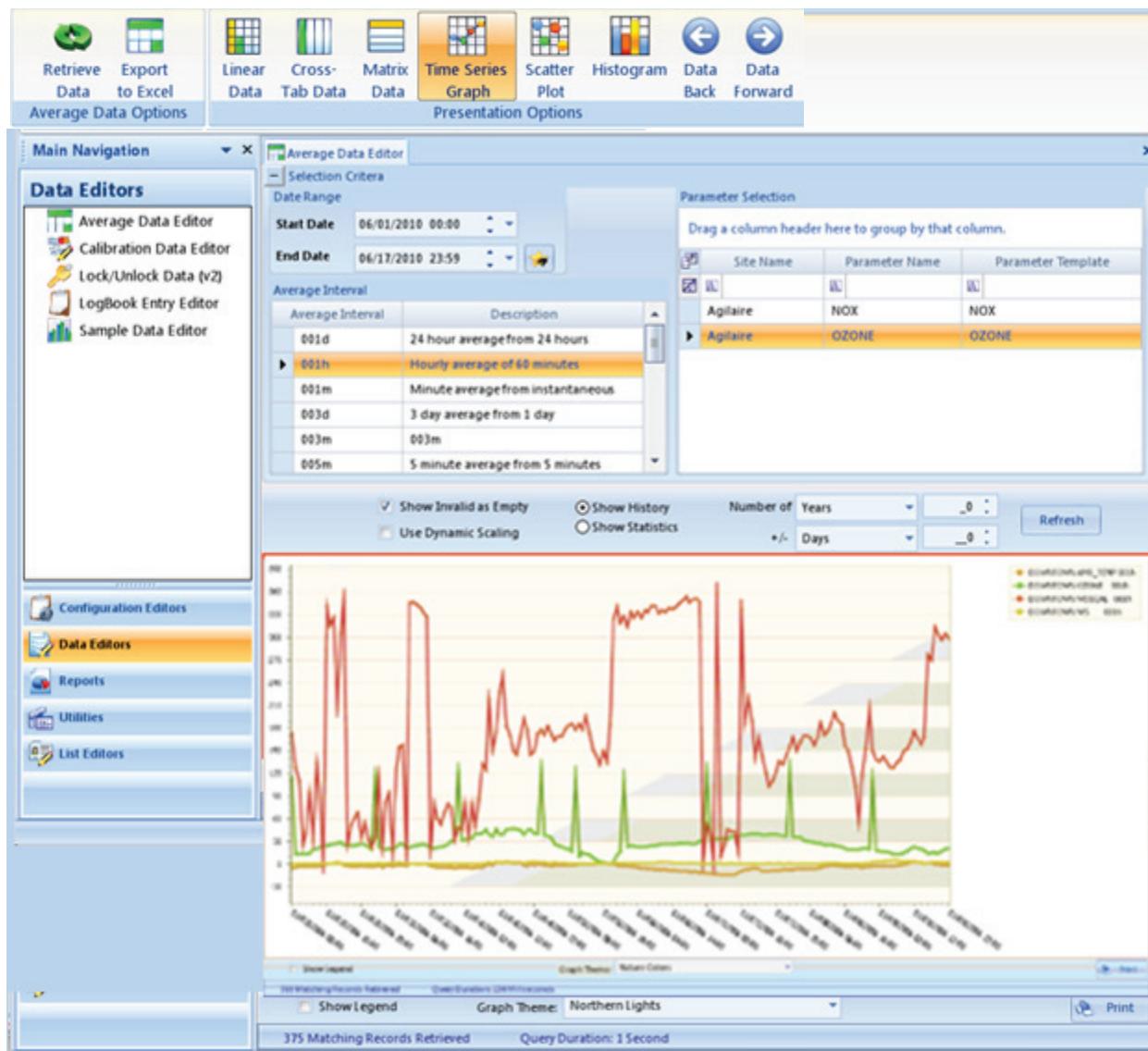
Time Series from Data Editors menu with multiple parameters selected

Use the mouse scroll wheel to zoom in or out; right-click and hold to drag the zoomed graph to a different data area.

Hover the cursor over a data point to see the specific date, time, and data value. If there is a flag on the data point the flag will also be displayed.

You can toggle between hiding or showing invalid data (e.g., data during calibration, maintenance, or analyzer failures).

When graphing parameters with two dramatically different full scale ranges, you may choose to use the "Dual Y-Axis Scale" option. When choosing this option, you must also choose the percentage (e.g., 10%, 20%) of the full scale range that is used as the 'breakpoint' for the secondary Y-axis. A value of 20% is common. Note that this function requires that Graph Maximum and Graph Minimum be set in the Parameter configuration. Graphs that have any parameters without limits configured cannot use the Dual Y-Axis function.

Suppress Flag Colors - If not selected, flagged data will be shown with "dots" with colors based on the Flag configuration. If selected, data will just be shown as the trend graph color. In both cases, hovering the cursor over the point will always show the flag, and the flag colors are still represented in the tabular/grid display.
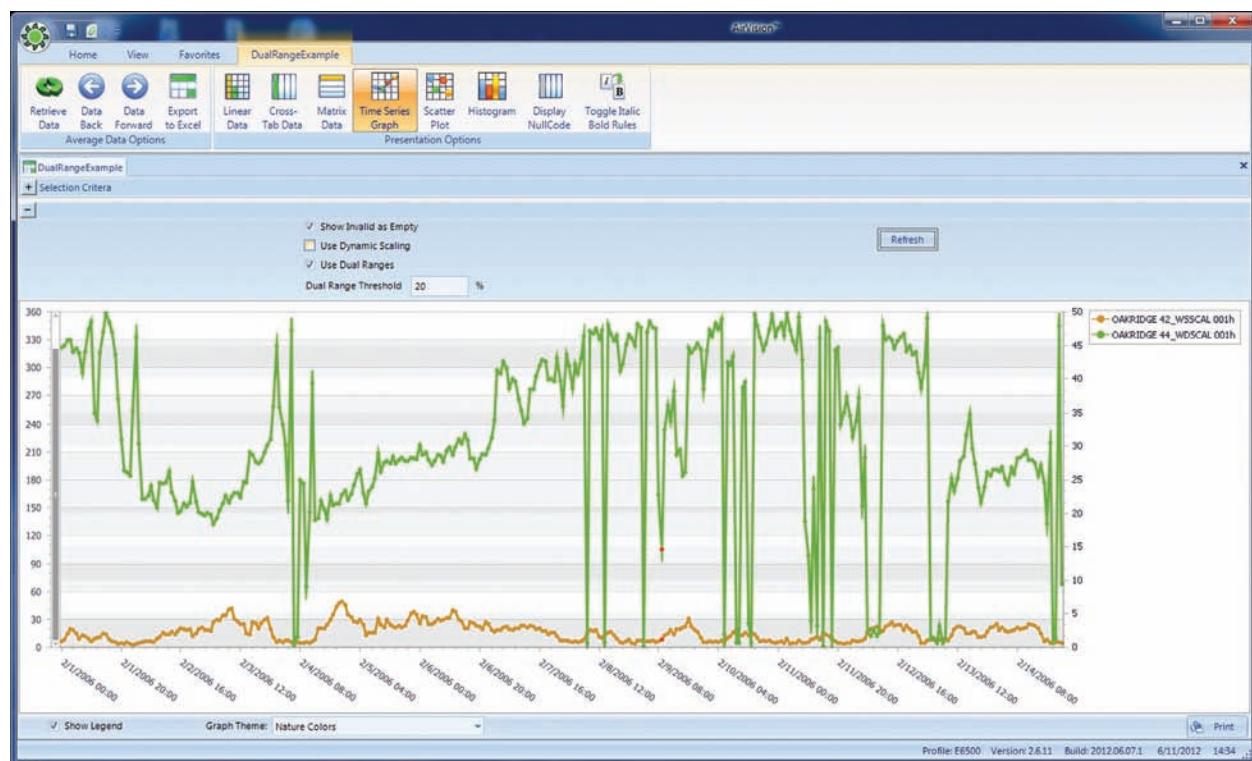

Dual Y-Axis function

For one parameter, you can choose previous intervals to be other than one year by selecting **Show History** from the options above the graph.If you bring up the Time Series Graph in single parameter mode, you get additional options at the top of the graph:

◆ Show History displays N previous years of data alongside main graph
◆ Show Statistics displays cumulative statistics of N previous years--min, max, avg
◆ Number of Years
◆ +/- Days allows rolling average of additional days in historical statistics
◆ Refresh
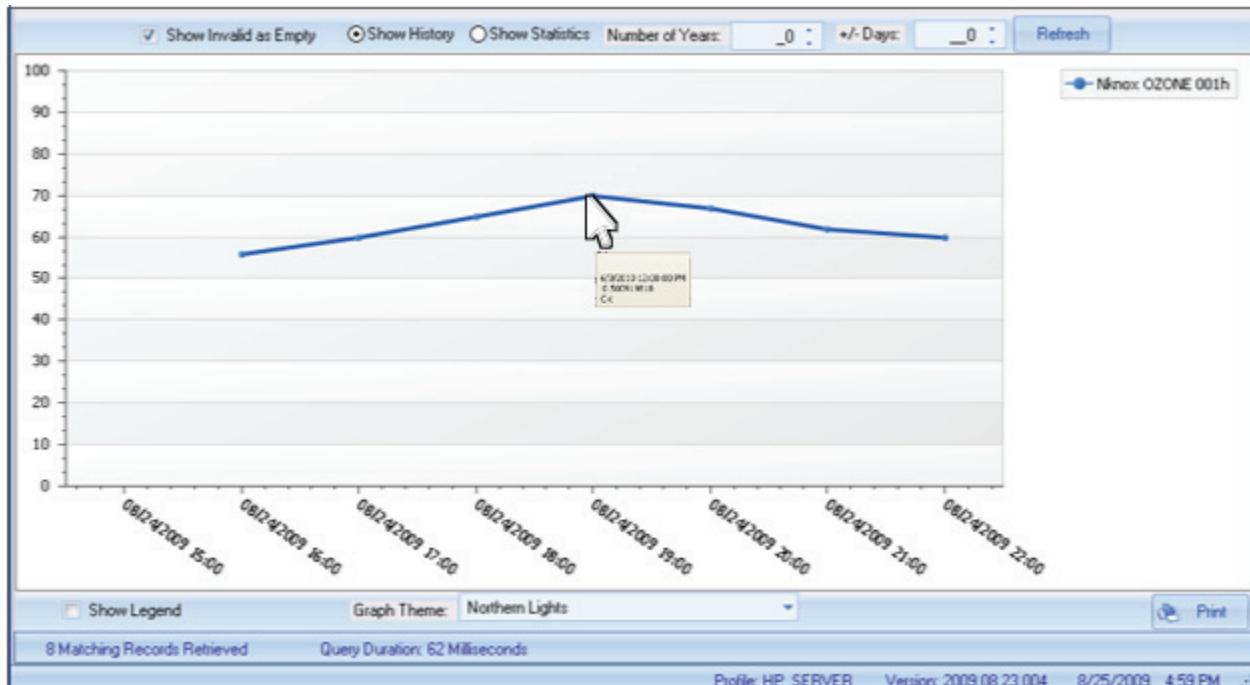
Time Series Graph with a single parameter selected and hover over displaying date, time data value, and flag

If the database contains data from previous years for the same parameter, those previous years can be graphed in the Time Series Graph alongside the current data by selecting **Show History** and the number of years you want to graph. Each previous year is graphed individually. Select **Refresh** to update the graph.
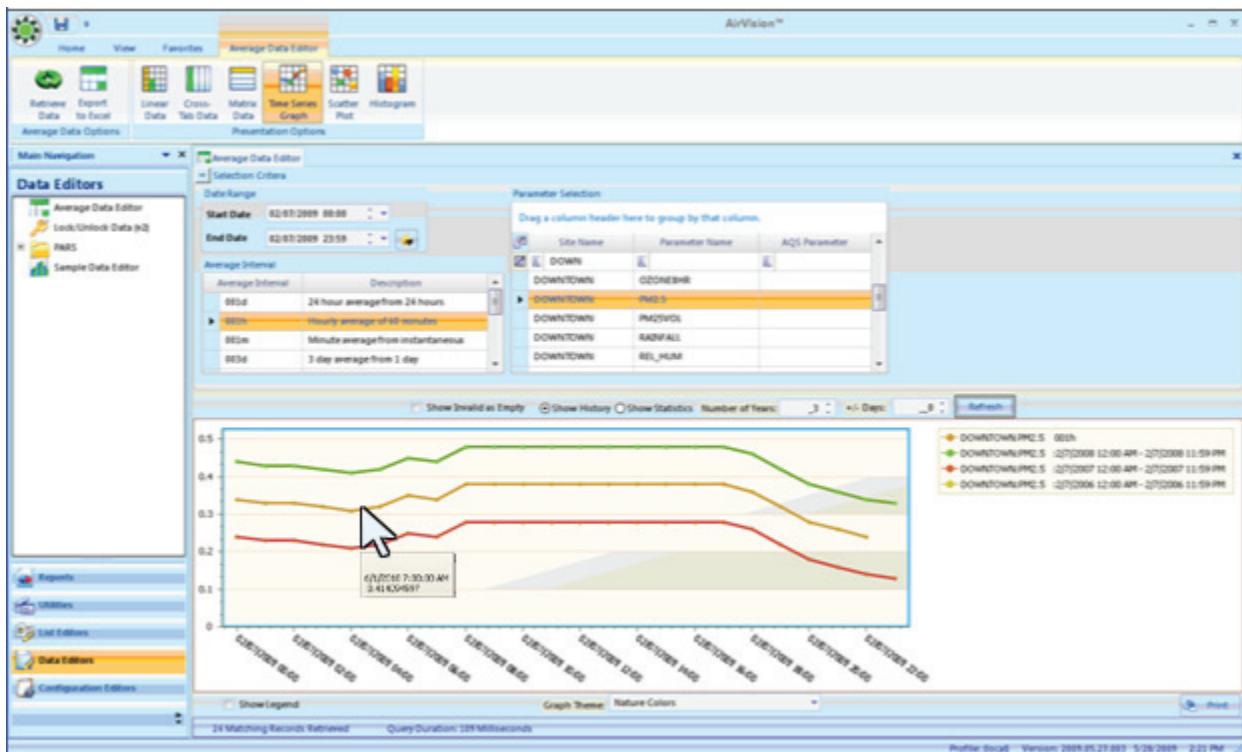
Time Series Graph with a single parameter and Show History option and hover over displaying date, and time data value

The "+/- Days" selector can be used to compile nearby days for the same hour into the comparison statistics. An example of how this is applied would be:

Current Data = 1/15/09,. Number of Years = 3, +/- Days = 1

1/5/09 data at hour 00 would be compared against statistics using the following points:
> 1/4/06, hour 00
> 1/5/06, hour 00
> 1/6/06, hour 00
> 1/4/07, hour 00
> 1/5/07, hour 00
> 1/6/07, hour 00
> 1/4/08, hour 00
> 1/5/08, hour 00
> 1/6/08, hour 00

Obviously, selection of a large data set with a long look back period and large skews can be very processor intensive for the client and the SQL server for large data sets. Agilaire recommends this tool be used for data sets of roughly a week or less.

Scatter Plot Graph

The Scatter Plot Graph allows any two parameters in the existing chart to be plotted in an X-Y chart. The Y axis parameter is the primary parameter and all data points are color coded according to the Data Flags color mappings to help distinguish outliers that have already been flagged.
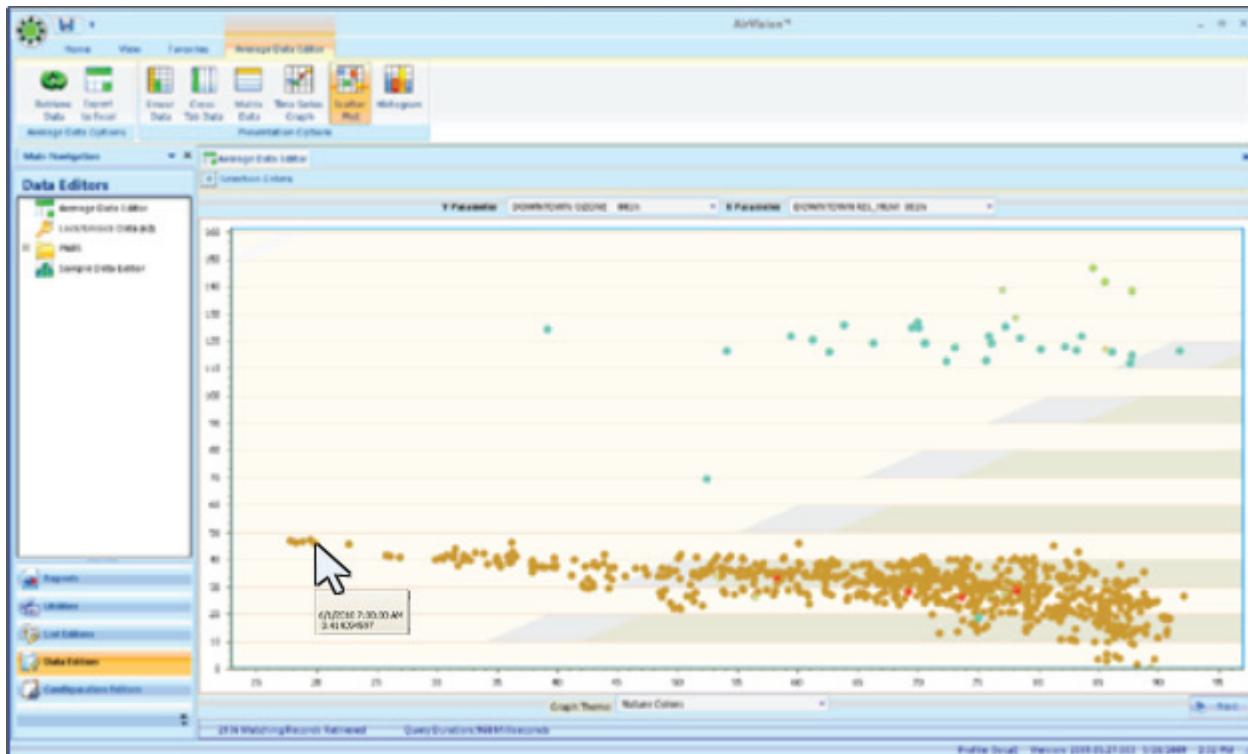
Scatter Plot Graph from Data Editors menu with hover over displaying date, time and data value

Histogram

The Histogram provides a graph of the distribution of values for the entire data set, but it is designed to display only one parameter at a time, so be careful not to use multiple parameters. The default graph uses the graph maximum/minimum from **Configuration Editors** > **Parameter Settings**, but you can check **Override** to set a custom max/min specifically for the X axis of this graph.
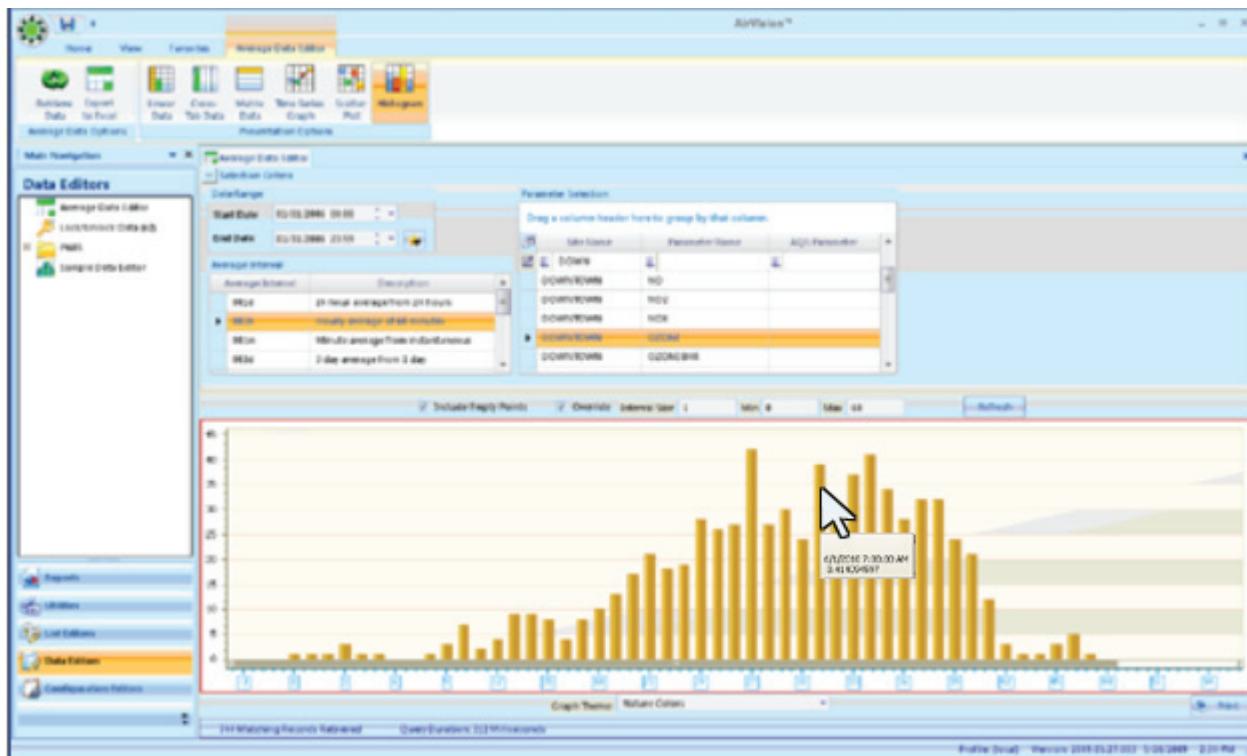
Histogram from Data Editors menu with hover over displaying date, time and data value

LogBook Entry Editor

The LogBook Entry Editor allows you to make entries in a logbook that can then be seen in LogBook Reports. To make a logbook entry, open **LogBook Entry Editor** from the **Editors** menu.

Click the **New Log Entry** button in the upper left corner of the screen

In the bottom section of the screen enter a **Log Entry Time**, **User Entry Time**, select a **Category** from the drop-down list or select **New Category** and enter a different category, select a **User** and a **Site** from the drop-down lists

Enter the LogBook message in the **Entry Text** box and click **Save**.

The new entry information will be displayed in a row in the top section of the screen.
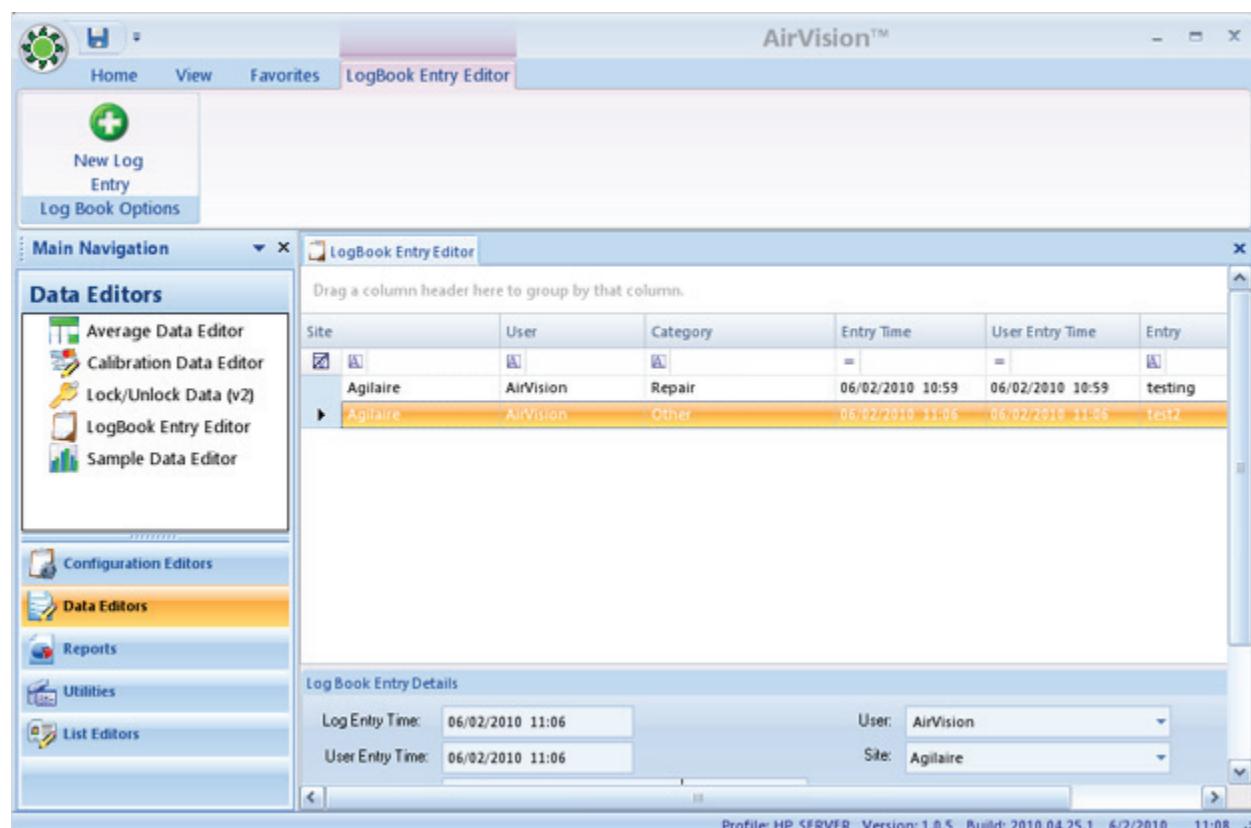
Adding LogBook entries in the LogBook Entry Editor from the Editors menu

By default, the logbook entries do not accept changes or addendums after the record has been saved. A system option is available to allow addendums to be made. To enable this, contact support@agilairecorp.com.

Realtime Display

The Model 8872 has three main realtime display programs to keep you informed of the realtime status of the readings, calibrations, I/O status, and averages:

◆ **Realtime Trend** is the same display used by AV-Trend to provide strip-chart likes trends and basic tabular displays.

◆ **Tabular Display** provides a series of LED-like displays, which can be zoomed in to time-series charts. This display is very useful for mixing of multiple display averages (instantaneous, minute, hourly, etc) on the same page.

◆ **Site Node Logger Tool Box** is a blend of three tools:

 ◆ **Readings** – current readings, and buttons to control / display maintenance or offline status of the channels; used to mark channels online/offline, or in/out of maintenance.

 ◆ **Calibration** – shows the current status of calibrations, and allows you to start or abort a calibration program.

 ◆ **Digital I/O** – show the current status of all physical or remote (Modbus) digital input / output points.

Realtime Graph in Status Displays>RealTime DataTrending Graph, showing both Chart and Grid

Tabular Display

The **Tabular Display** provides a series of LED-like displays, which can be zoomed in to time-series charts. The chart display is very useful for mixing multiple display averages (instantaneous, minute, hourly, etc) on the same page. Boxes can be dragged to create a custom layout, and the layout can be saved for future recall. Because of the complexity of the elements in the layout, they are stored separately than the regular Favorites system.
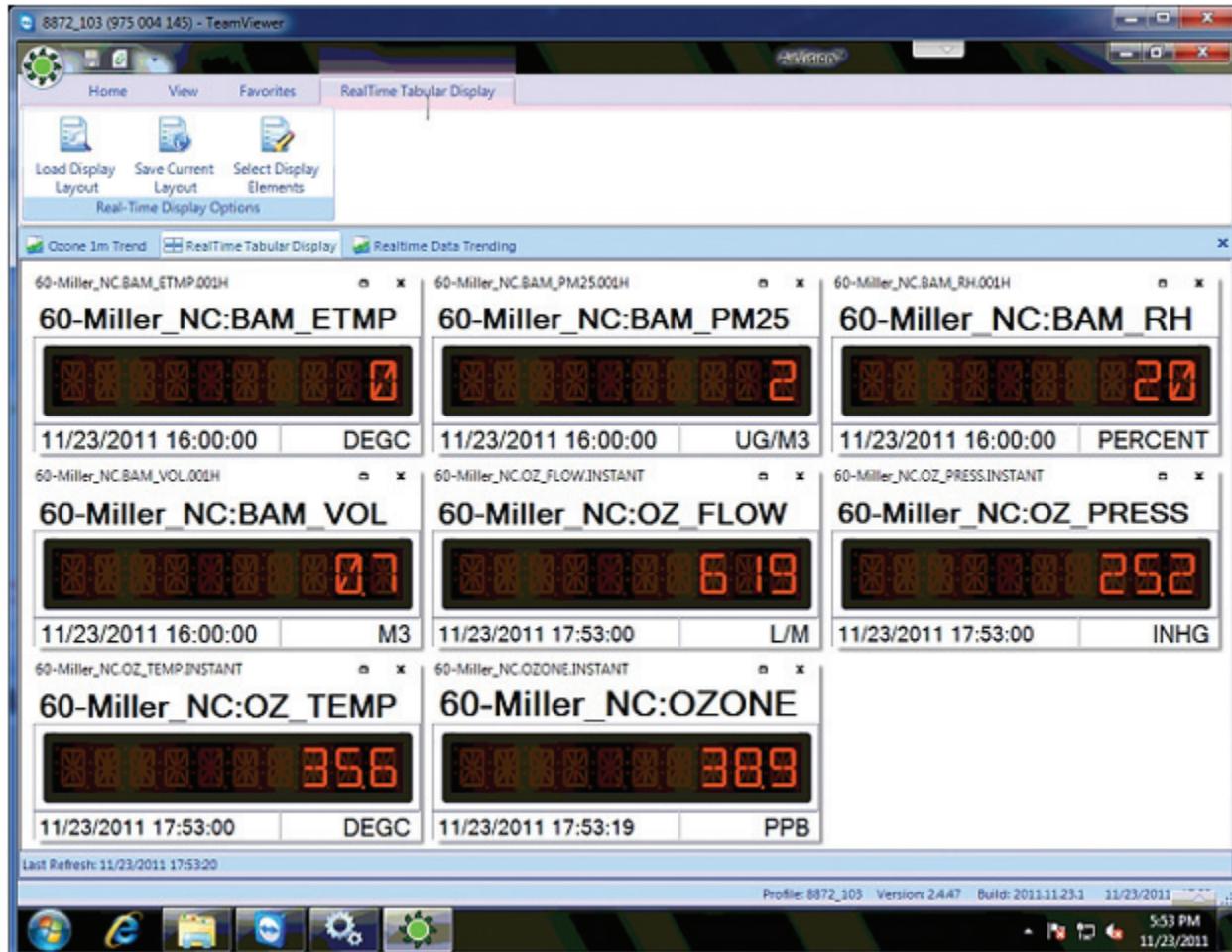

Create a new layout by clicking the Select Display Elements icon from the ribbon

You can use the filter fields to narrow parameter names and, more importantly, average intervals, if needed. The form supports standard Windows drag-select, shift-select, and CTRL-select actions. Note that the display will support multiple average intervals, so it is possible to mix minute and hourly data (e.g., analyzers and BAMs) on the same screen. Instantaneous data panels are selected on the next page.
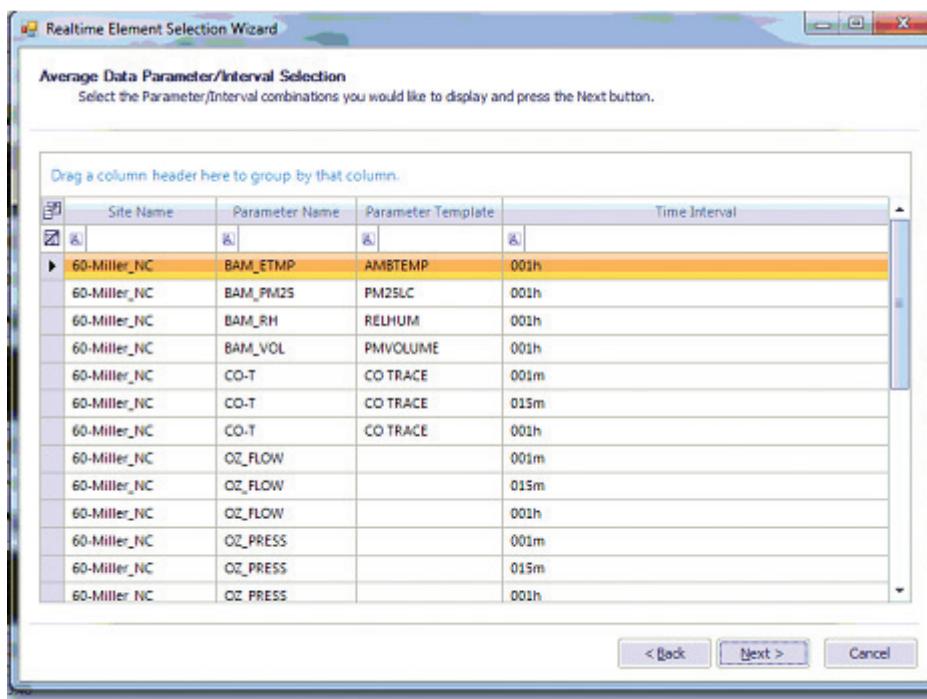

Realtime Element Selection Wizard--Average Data Parameter / Interval Selection
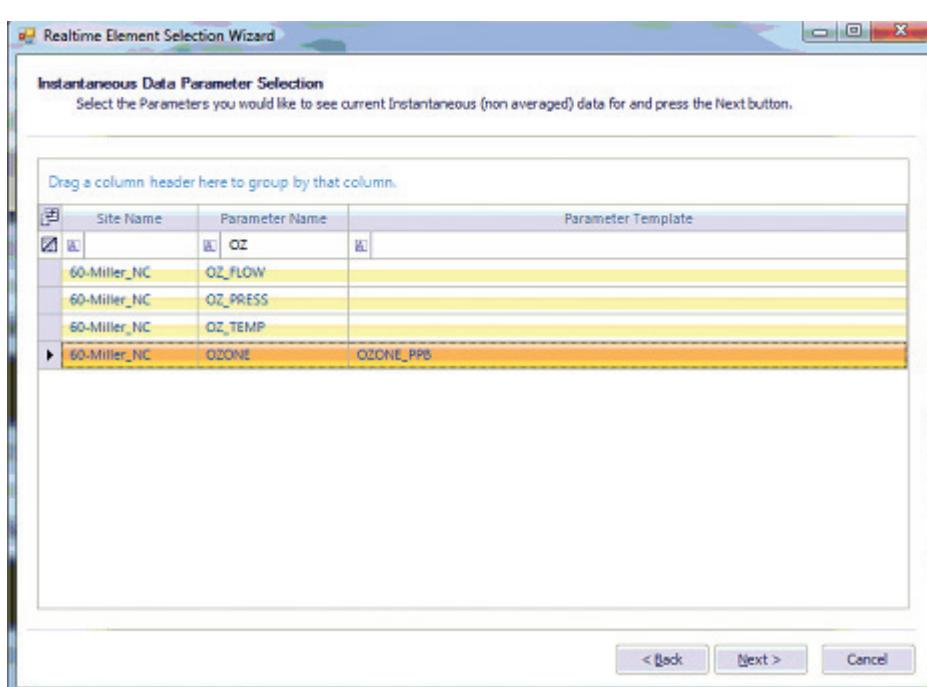
Realtime Element Selection Wizard--Instantaneous Data Parameter Selection

Finally, the Wizard asks if you want to view the realtime status of any digital input status lines. Select lines by clicking the left-side check boxes.
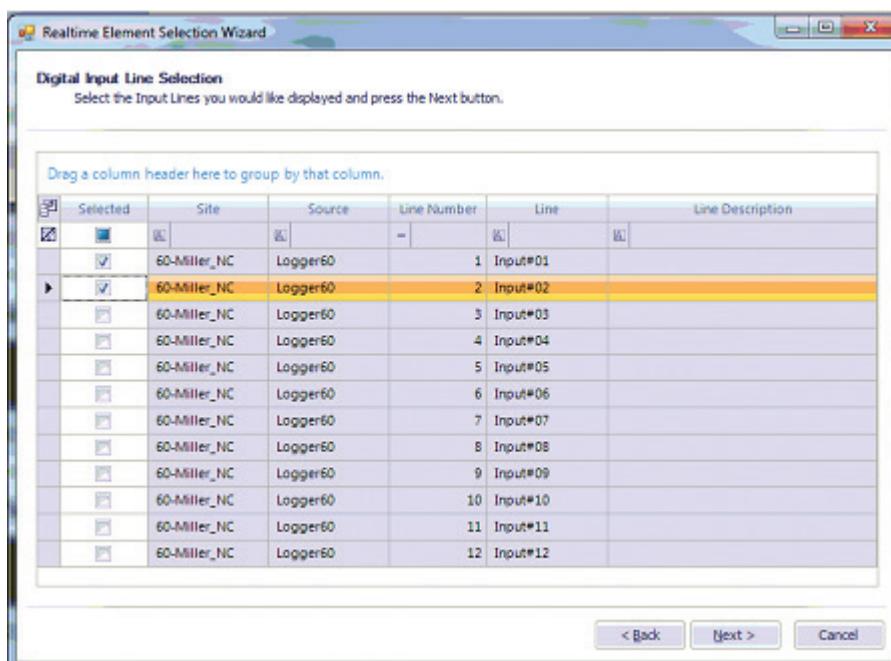

Realtime Element Selection Wizard--Digital Input Line Selection

Once the wizard is finished, the display will start and begin updating. Panels can be dragged into any desired order/arrangement by click-drag (click and drag from the **title bar** area at the top, above the large-font name). Panels can be eliminated by clicking the **X** box in the upper right. To zoom into a particular reading, click the expand box to the left of the **X**.
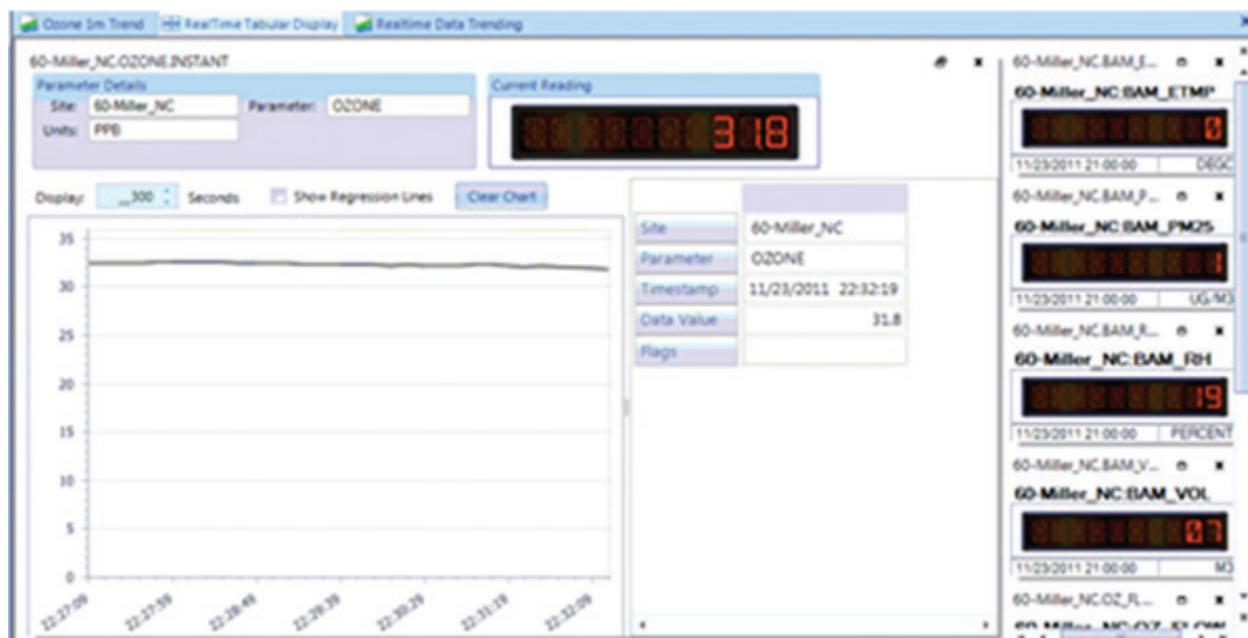
Updating Display with movable Panels

The other panels will minimize, and the selected parameters will expand into a trend chart, with an LED panel, still updating the current reading / average. For instantaneous data, the duration of the display can be modified if needed. Instantaneous readings default to show the previous 5 minutes, while charts of averages are longer. Instantaneous readings also have an option to show a trendline of the general direction of the newest readings.
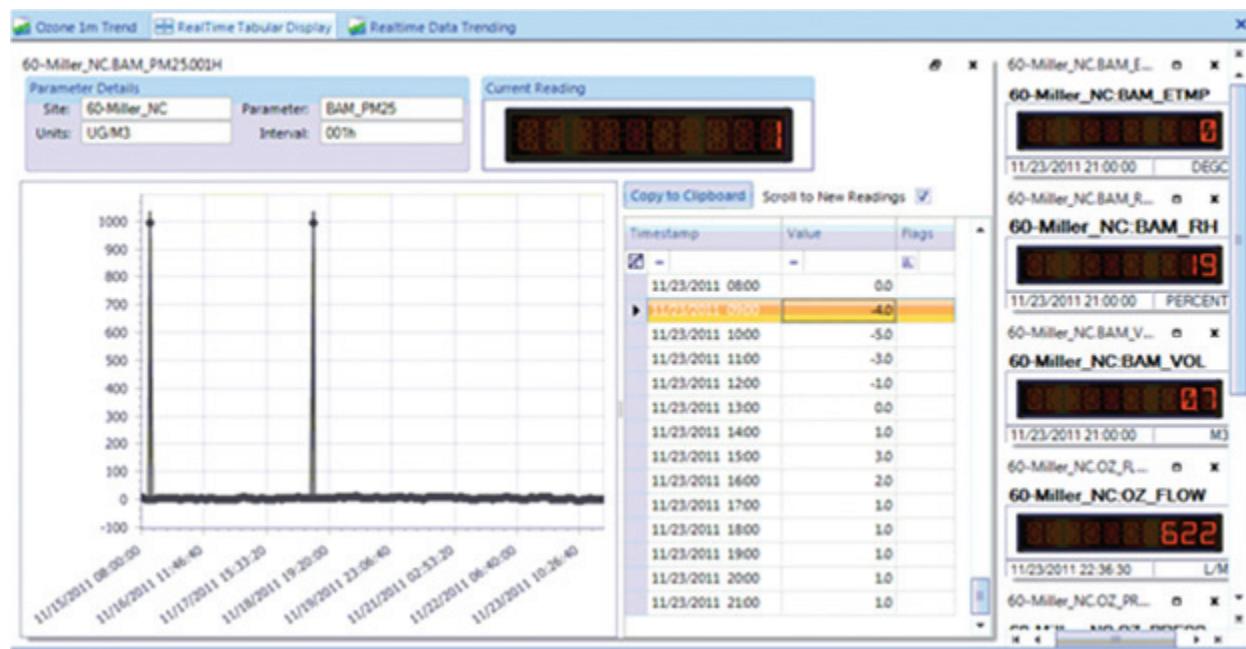
A grid of previous averages for averaged data.

To return the display to its previous mode, click the resize button (two stacked windows) next to the **X** close box.

Realtime Trend

The Realtime Trend provides a time-series view of data that continuously updates. Any number of Realtime Trend tabs may be opened, and they can graph any average interval available in the system (most commonly 10 second and 1-minute trends).

▶ **Note:** Because Favorites can be used to store Realtime Trend settings, and can be set to automatically open on startup, it is simple to define some screens to open automatically on the client launch (and by putting the Client in the startup folder and storing the login username and password), the PC can be set to start up the client and the default trends on PC reboot.

To create a new trend, select **Status Displays>Real Time Trending** in the menu. To query a report, select parameters and averaging interval. Select **Automatic Refresh** from the menu for a continuously updating trend.

By default, the screen will show both a time-series plot and a grid list of data points on the right side. By using the **Show Grid** and **Show Chart** ribbon buttons, you can define whether you want a chart (a list of numeric readings, good for a large number of parameters), or both a chart and grid.
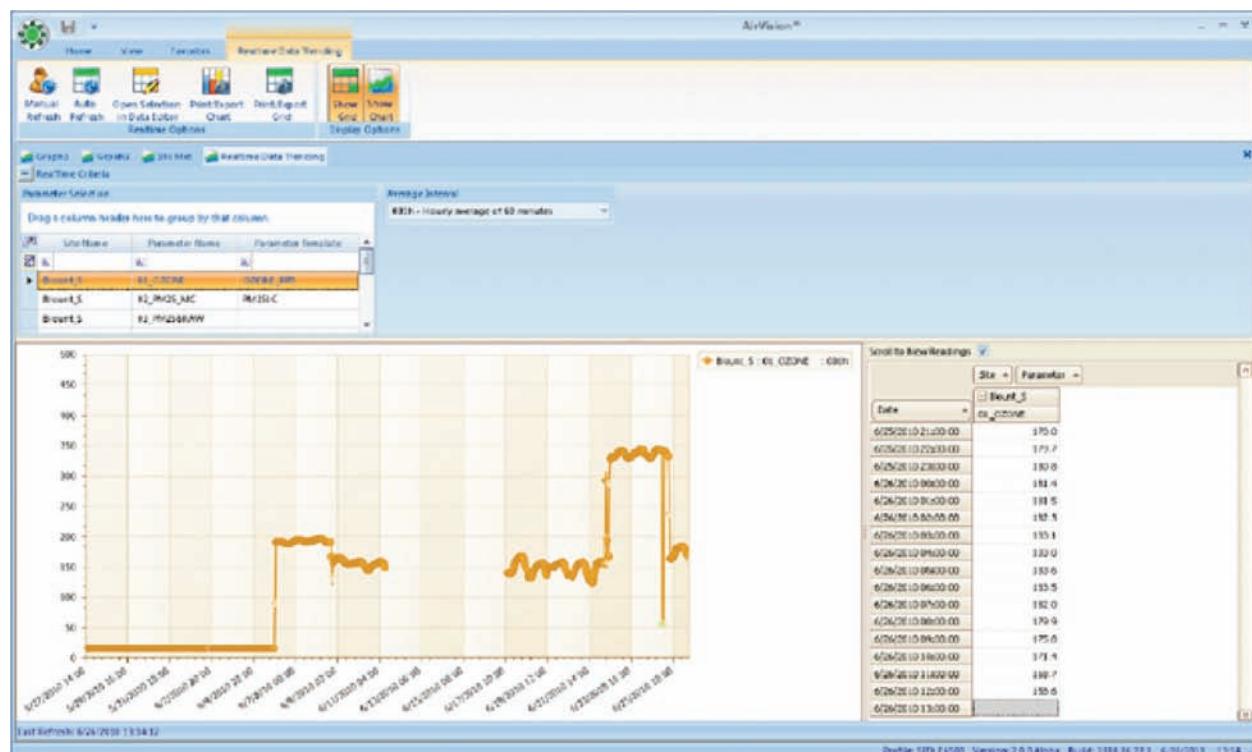
Realtime Graph in Status Displays>Real Time Trending Graph showing both Chart and Grid
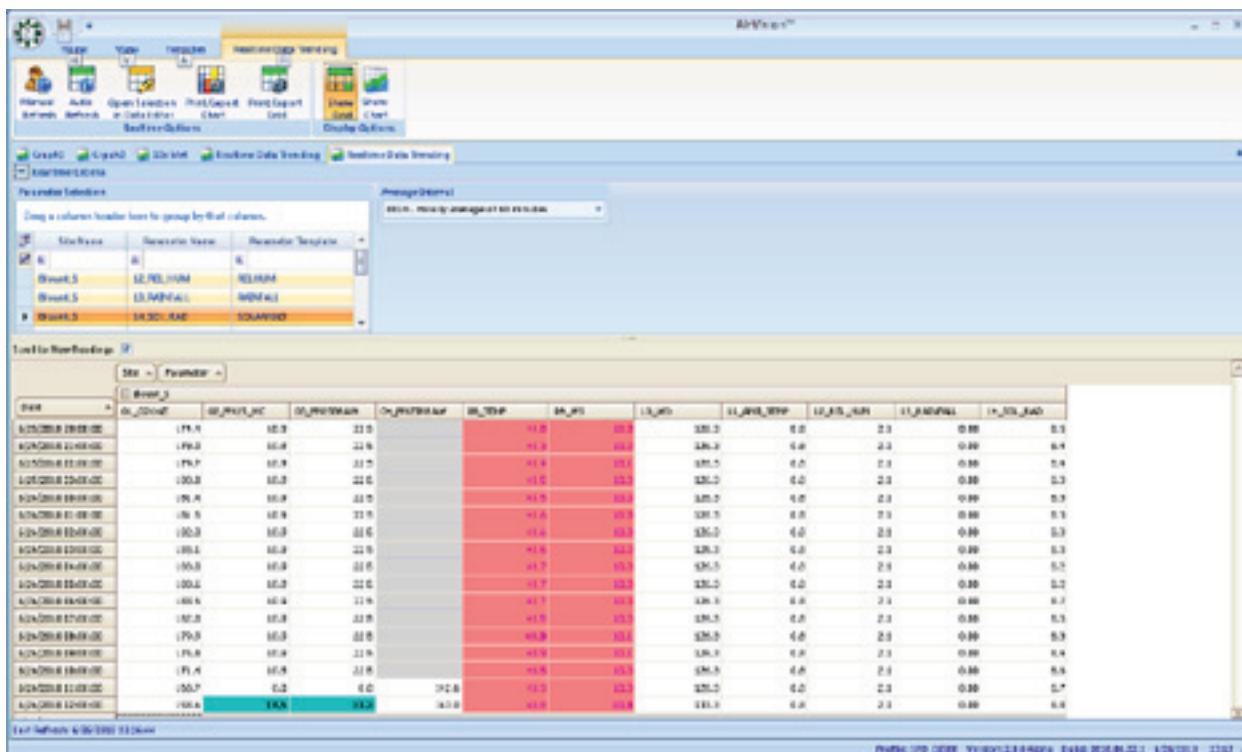
Realtime Graph in Status Displays>Real Time Trending Graph showing Chart only

Hover the mouse pointer over a data point on the graph to see details of exact time and value.

Realtime Graph in Status Displays>Real Time Trending Graph with mouse hover on data point

Additional Ribbon functions:

  Print or Export the Chart or the Grid (HTML, CSV, XLS, BMP, JPG, etc)

  Select a range of data in the grid and open that data in the Data Editor.

Adding Annotations

  To add an annotation to the realitme graph, first make sure **Show Grid** is enabled, then right-click to select a range of data and add your comment.

Average Interval

001m - Minute average from instantaneous ▼

Number of Hours in Lookback: _____4 ⬍

☑ Use Dynamic Scaling

☐ Suppress Reading Flag Colors
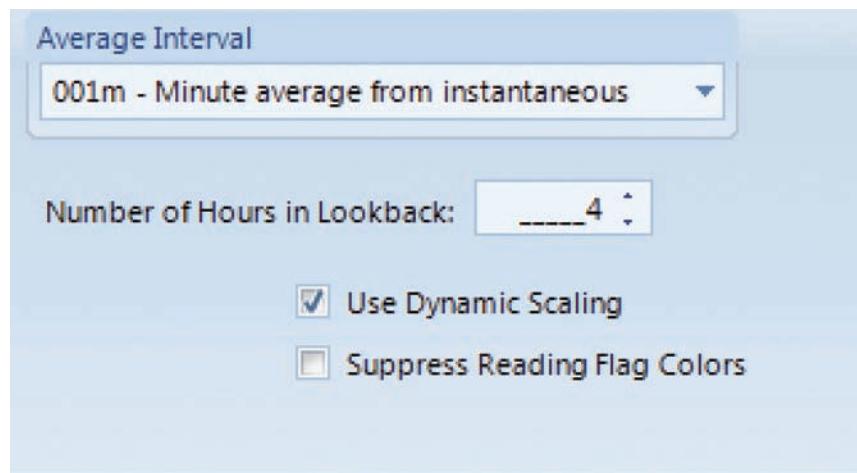
In the graph criteria, the user may select several customizations:

◆ **Number of Hours in Lookback** - This allows the user to dynamically define the width of the graph. After changing, the user should select "Manual Refresh" from the ribbon to take effect. This preference is stored with any Favorite created.

◆ **Use Dynamic Scaling** - If selected, the data graph min/max is set based on the range of data, rather than the graph min/max configured in the Parameter settings editor.

◆ **Suppress Flag Colors** - If not selected, flagged data will be shown with "dots" with colors based on the Flag configuration. If selected, data will just be shown as the trend graph color. In both cases, hovering the cursor over the point will always show the flag, and the flag colors are still represented in the tabular/grid display.

Right Click Data

Within the Real-Time Trend, the user may drag-select and right-click a list of data points. The user is then presented with two options:

◆ **Annotate Selected** - this will allow the user to add a text annotation to the data, which will appear in future use of the Data Editor, or can be recalled in the Annotations Report.

◆ **Analyze Selected** - this will bring up a box, allowing the user to see an average, or other statistics of only the selected data points. This is commonly used to average calibration or test "runs" of data. The results can also be printed or saved using the "Print/Export Grid" button.

Right Click example